

THE NETHERLANDS  
(N E D E R L A N D)

## COMMUNICATION

Concerning <sup>(1)</sup>

- approval granted
- approval extended
- ~~approval refused~~
- ~~approval withdrawn~~
- ~~production definitely discontinued~~

of a type of lamp pursuant to UN Regulation number 148 (LSD).

|                     |                                                      |
|---------------------|------------------------------------------------------|
| Lamp <sup>(1)</sup> | <del>Rear registration plate illuminating lamp</del> |
|                     | <del>Direction indicator lamp</del>                  |
|                     | <del>Stop lamp</del>                                 |
|                     | <del>Position lamp</del>                             |
|                     | <del>End-outline marker lamp</del>                   |
|                     | <del>Reversing lamp</del>                            |
|                     | <del>Manoeuvring lamp</del>                          |
|                     | <del>Rear fog lamp</del>                             |
|                     | <del>Parking lamp</del>                              |
|                     | <del>Daytime running lamp</del>                      |
|                     | Side marker lamp                                     |

Category of the lamp : R1, S1

Change index : ---

Approval number : E4\*148R00/03\*0341\*00

Unique Identifier (UI) (if applicable) : ---

1. Trade name or mark of the lamp :  (K-LITE), K-LITE, KYI
2. Manufacturer's name for the type of lamp : T134-WD
3. Manufacturer's name and address : K-Lite (Yuyao) Plastics Co., Ltd.  
No.5 Workshop, No.20 Xingye Road,  
Yangming Industrial Zone, Yuyao City,  
Zhejiang Province, 315400 China (PRC)
4. If applicable, name and address of the manufacturer's representative : ---
5. Submitted for approval on : 20/04/2022
6. Technical service responsible for conducting approval tests : IDIADA  
L'Albornar- PO Box 20  
E-43710 Santa Oliva (Tarragona)  
SPAIN
7. Date of report issued by that Service : 18/05/2022
8. Number of report issued by that Service : CN22040598
9. Concise description :
  - 9.1. In case of
    - 9.1.1. A rear-registration plate illuminating lamp : ---

Geometrical conditions of installation (position(s) and inclination(s) of the device in relation to the space to be occupied by the registration plate and/or different inclinations of this space) : ---
    - 9.1.2. A direction indicator : ---
    - 9.1.3. Sequential activation of light sources : ~~yes~~/no<sup>(1)</sup>  
A reversing lamp : ---

The lamp shall be installed on a vehicle only as part of a pair of lamps : ~~yes~~/no<sup>(1)</sup>
    - 9.1.4. A manoeuvring lamp :

The maximum mounting height : ---
  - 9.2. By light signalling function and category:

For mounting either outside ~~or inside~~  
~~or both~~<sup>(1)</sup>



- Colour of light emitted : red/~~white~~/~~amber~~/colourless<sup>(+)</sup>
- Number, category and kind of light source(s) : Stop lamp: 15 x LEDs  
Rear position lamp: 15 x LEDs
- Voltage and wattage : Stop lamp: 12V/24V, 2.2W;  
Rear position lamp: 12V/24V, 0.3W
- Light source module : ~~yes~~/no<sup>(1)</sup>
- Light source module specific identification code : ---
- Only for limited mounting height of equal to or less than 750 mm above the ground, if applicable : ~~yes~~/no<sup>(1)</sup>
- Geometrical conditions of installation and relating variations, if any : ---
- Application of an electronic light source control gear/variable intensity control :
- (a) Being part of the lamp : ~~yes~~/no<sup>(1)</sup>
- (b) Being not part of the lamp : ~~yes~~/no<sup>(1)</sup>
- 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, if applicable : ~~yes~~/no<sup>(1)</sup>
- Function(s) produced by an interdependent lamp forming part of an interdependent lamp system, if applicable : ---
- 9.3. ~~The front position lamp~~<sup>(+)</sup>, rear position lamp<sup>(1)</sup>, stop lamp<sup>(1)</sup>, ~~end-outline marker lamp~~<sup>(+)</sup>, ~~daytime running lamp~~<sup>(1)</sup> is only for use on a vehicle fitted with a tell-tale indicating failure : ~~yes~~/no<sup>(1)</sup>
10. Position of the approval mark : Marked on Lens
11. Reason(s) for extension (if applicable) : ---



12. Approval : ~~granted/extended/refused/withdrawn~~<sup>(1)</sup>
13. Approval granted for devices to be used on vehicles already in use only : ~~yes~~/no<sup>(1)</sup>
14. Place : Zoetermeer
15. Date : 20 May 2022
16. Signature :   
R. Sarabdjitsingh
17. 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.

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<sup>(1)</sup> Strike out what does not apply.

## Statement manufacturer and authorization regarding application

1 **EC & UNECE type-approval number** : E4\*148R00/03\*0341\*00

2 ☒ **Manufacturer/** ☐ **Manufacturer's representative** <sup>(1)</sup>

3 Company name : K-Lite (Yuyao) Plastics Co., Ltd.  
4 Name authorized person : Zhu Xiaolong  
5 Job title : General manager  
6 E-mail address : 18605844788@163.com  
7 Address : No.5 Workshop, No.20 Xingye Road, Yangming Industrial Zone, Yuyao City, Zhejiang  
Province, 315400 China (PRC)  
8 Country : China

### 9 **Statement**

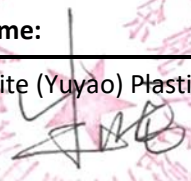
10 Hereby : Zhu Xiaolong ,  
11 declares on behalf of  
the manufacturer : K-Lite (Yuyao) Plastics Co., Ltd. ,  
12 for the application with  
type-approval number : E4\*148R00/03\*0341\*00 ,  
13 the following:  
14 a) the manufacturer has not applied for an EC & UNECE type-approval for the same type to any other approval  
authority, and no other approval authority granted the manufacturer such an approval;  
15 b) no approval authority has refused to grant type-approval of that type;  
16 c) no approval authority has withdrawn type-approval of that type;  
17 d) the manufacturer has not revoked an application for a type-approval of that type.

### 18 **Authorization regarding handling of this application (if applicable)** <sup>(2)</sup>

19 Company name : IDIADA AUTOMOTIVE TECHNOLOGY International Offices Homologation Department  
20 E-mail address : suppliers@idiada.com  
21 Address : Pol. Ind. L'Albornar - s/n E – 43710 Santa Oliva (Tarragona)  
22 Country : España

### 23 **Authorization**

24 By means of this  
declaration, I : Zhu Xiaolong ,  
25 on behalf of : K-Lite (Yuyao) Plastics Co., Ltd. ,  
26 Authorizes : IDIADA AUTOMOTIVE TECHNOLOGY International Offices Homologation Department ,  
27 to respectively apply for a type-approval with type-approval number:  
E4\*148R00/03\*0341\*00 ,  
28 handle all communication concerning this application and receive the type-approval certificate.

| 29 <b>Date</b>  | <b>Place</b>                 | <b>Name:</b>                                                                          |
|-----------------|------------------------------|---------------------------------------------------------------------------------------|
| 30 May 16, 2022 | Zhejiang, China              | K-Lite (Yuyao) Plastics Co., Ltd.                                                     |
| 31              | On their behalf, signature : |  |
| 32              | Name :                       | Zhu Xiaolong                                                                          |

<sup>(1)</sup> Mark the specific checkbox.

<sup>(2)</sup> This authorization only concerns the application procedure and all activities that are directly or indirectly related to this procedure. If and insofar as other procedures, including the lodging of objections, are deemed necessary, a new authorization must be submitted in respect of that specific procedure.

TECHNICAL DOCUMENTATION

Application date : April 20, 2022

### 1. Specification data

|                                     |                           |                                                                                                         |  |                    |  |
|-------------------------------------|---------------------------|---------------------------------------------------------------------------------------------------------|--|--------------------|--|
| Type                                |                           |                                                                                                         |  | T134-WD            |  |
| Function                            |                           | Stop                                                                                                    |  | Rear position lamp |  |
| Emitted color                       |                           | Red                                                                                                     |  | Red                |  |
| Rated                               | Voltage                   | 12V/24V                                                                                                 |  |                    |  |
|                                     | Wattage                   | 2.2W                                                                                                    |  | 0.3W               |  |
| Applicable Regulation (UN)          |                           | R148.00 Cat. S1                                                                                         |  | R148.00 Cat. R1    |  |
| Number and category of light source |                           | 15xLED Non-replaceable light source                                                                     |  |                    |  |
| Location of marking                 | Rated voltage and wattage | Marked on Housing                                                                                       |  |                    |  |
|                                     | Trade mark                |  (K-LITE), K-LITE, KYI |  | Marked on Lens     |  |
|                                     | Approval mark             | Marked on Lens                                                                                          |  |                    |  |

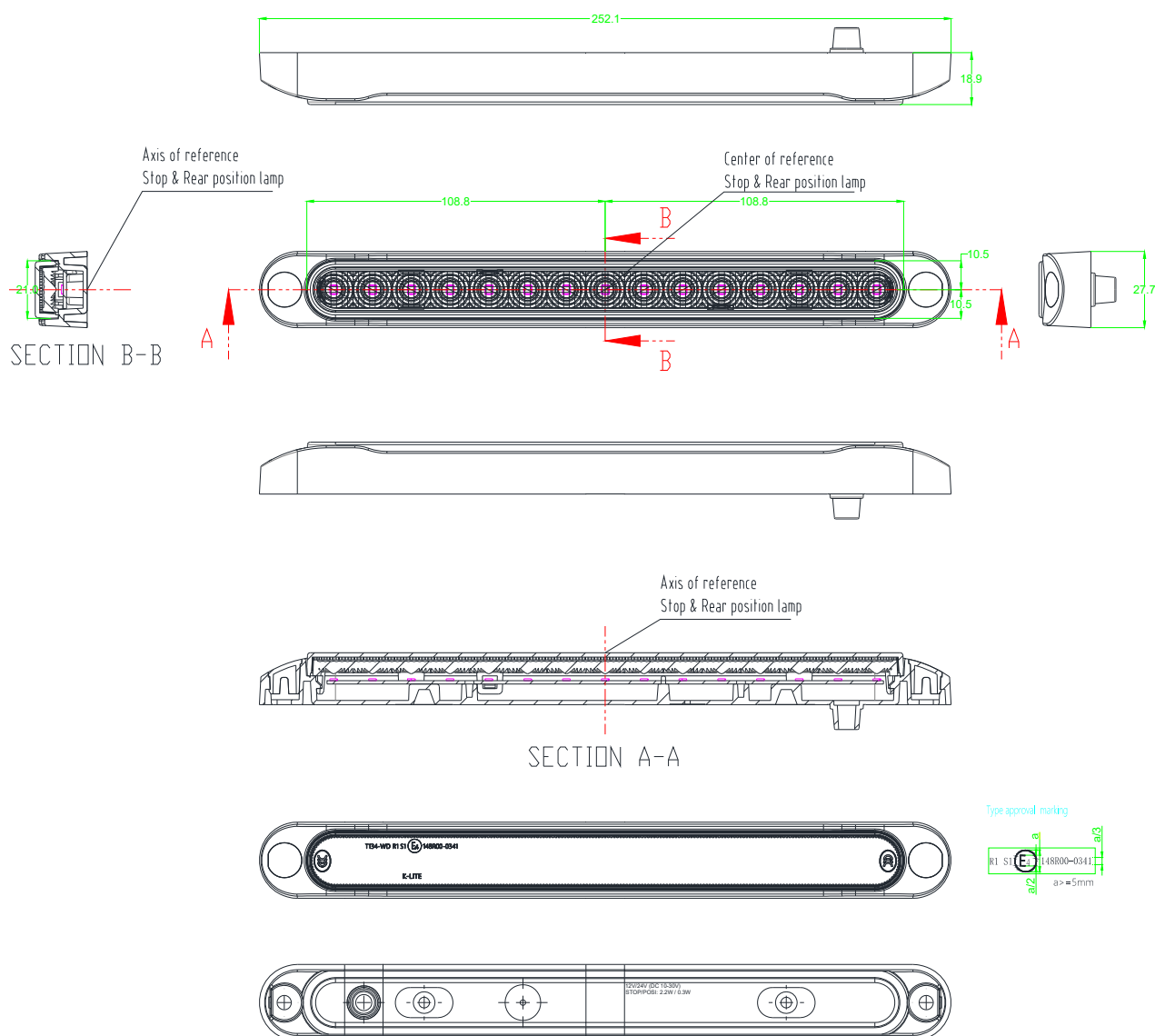
### 2. Construction and material

| Construction      | Material | Remarks             |
|-------------------|----------|---------------------|
| Outer Lens        | PMMA     | Red, Non-Textured   |
| Inner Lens        | PMMA     | Clear, Non-textured |
| Housing           | ABS      | Black               |
| Electrical wiring | ---      | ---                 |

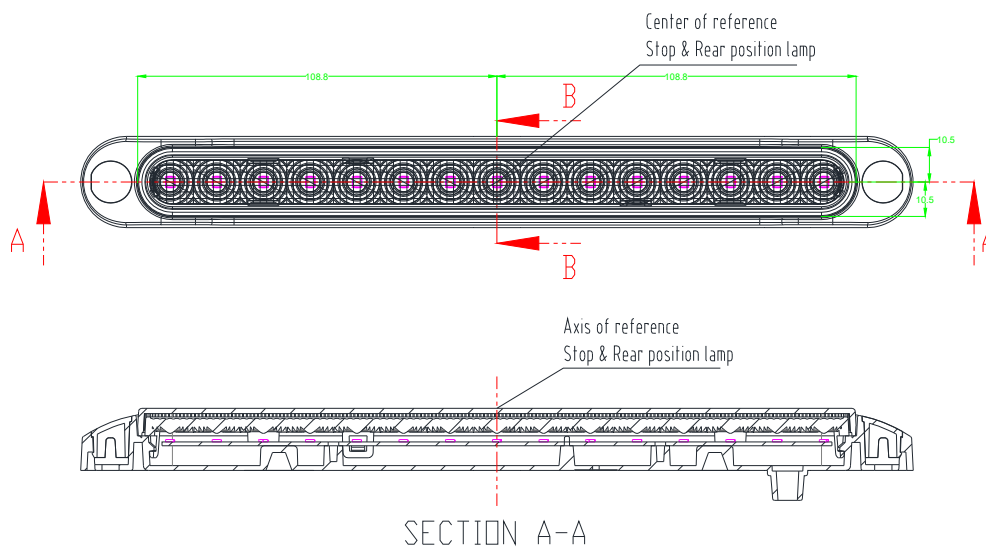
3. Name and address of manufacturer : K-Lite (Yuyao) Plastics Co., Ltd.  
No.5 Workshop, No.20 Xingye Road,  
Yangming Industrial Zone, Yuyao City,  
Zhejiang Province, 315400 China (PRC)

4. Name and address of representative of manufacturer : Not applicable

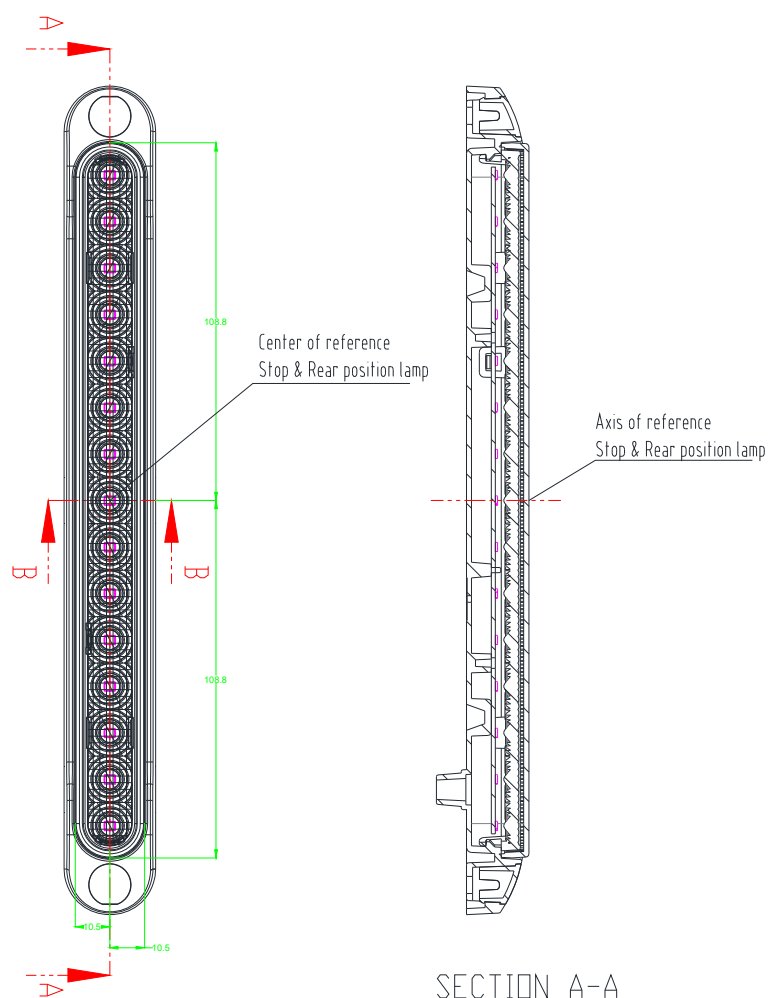
This information document consists of 4 pages.



## Installation condition 1: Horizontal mounting



## Installation condition 2: Vertical mounting





**REPORT No. CN22040598****CONCERNING THE APPROVAL OF LIGHT-SIGNALLING DEVICES (LAMPS) FOR POWER-DRIVEN  
VEHICLES AND THEIR TRAILERS ACCORDING TO UN REGULATION No. 148R00/03**

Manufacturer's name and address : K-Lite (Yuyao) Plastics Co., Ltd.  
No.5 Workshop, No.20 Xingye Road,  
Yangming Industrial Zone, Yuyao City,  
Zhejiang Province, 315400 China (PRC)

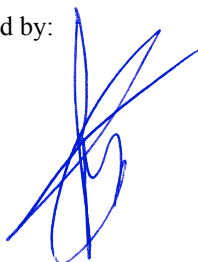
Trade mark :  (K-LITE), K-LITE, KYI

Type : T134-WD

Place and date of test report issue : L'Albornar, Santa Oliva (Tarragona)  
18/05/2022

CONCLUSIONS: This device **FULFILLS** the prescriptions with regard to the approval of light-signalling devices (lamps) for motor vehicles and their trailers in application of UN Regulation No. 148R00/03 as detailed in the annex to this report.

Performed by:

Joan Fonts Sala  
TEST ENGINEER

Revised by:

Josep Masip Gomez  
DEPARTMENT MANAGER

**ANNEX TO THE REPORT**

Manufacturer's name and address <sup>(1)</sup> : K-Lite (Yuyao) Plastics Co., Ltd.  
No.5 Workshop, No.20 Xingye Road,  
Yangming Industrial Zone, Yuyao City,  
Zhejiang Province, 315400 China (PRC)

Trade mark <sup>(1)</sup> :  (K-LITE), K-LITE, KYI

Type <sup>(1)</sup> : T134-WD

Variants <sup>(1)</sup> : ---

Sample identification : CN22040598

Lamp <sup>(1)(2)</sup> : ~~- Rear registration plate illuminating lamp~~  
~~- Front direction indicator lamp~~  
~~- Rear direction indicator lamp~~  
~~- Stop lamp~~  
~~- Front position lamp~~  
~~- Rear position lamp~~  
~~- Front end-outline marker lamp~~  
~~- Rear end-outline marker lamp~~  
~~- Reversing lamp~~  
~~- Manoeuvring lamp~~  
~~- Rear fog lamp~~  
~~- Parking lamp~~  
~~- Daytime running lamp~~  
~~- Side marker lamp~~  
~~- Rear registration plate illuminating lamp for category L vehicles~~  
~~- Front direction indicator lamp for category L vehicles~~  
~~- Rear direction indicator lamp for category L vehicles~~  
~~- Stop lamp for category L vehicles~~  
~~- Front position lamp for category L vehicles~~  
~~- Rear position lamp for category L vehicles~~

<sup>(1)</sup> Information provided by the client. The laboratory is not responsible for such information

<sup>(2)</sup> Strike out what does not apply

| Lamp <sup>(1)</sup> | Category <sup>(1)(2)</sup> | Kind of lamp <sup>(1)(2)</sup>                 | Light sources number and category <sup>(1)</sup> | Replaceability <sup>(1)(2)</sup>         | Light source module specific identification code (if applicable) |
|---------------------|----------------------------|------------------------------------------------|--------------------------------------------------|------------------------------------------|------------------------------------------------------------------|
| Stop lamp           | S1 – S2 – S3 – S4          | Single – <del>D-lamp</del> – <del>Y-lamp</del> | 15 x LEDs                                        | <del>Replaceable</del> – Non-replaceable | ---                                                              |
| Rear position lamp  | R1 – R2                    | Single – <del>D-lamp</del> – <del>Y-lamp</del> | 15 x LEDs                                        | <del>Replaceable</del> – Non-replaceable | ---                                                              |

<sup>(1)</sup> Information provided by the client. The laboratory is not responsible for such information

<sup>(2)</sup> Strike out what does not apply

## STOP AND REAR POSITION LAMP

### MARKING

|         |                |
|---------|----------------|
| Marking | <b>CORRECT</b> |
|---------|----------------|

### 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, 53, 74 or 86, and their series of amendments in force at the time of application for the lamp type approval shall apply to this Regulation.<br>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. | <b>CORRECT</b> |
| Vibration endurance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>CORRECT</b> |

### LIGHT SOURCE MODULES

|                                                                                                                                                                                                                                                                                                                                                                                                                               |                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| The design of the light source module(s) shall be such as:<br>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);<br>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. | <b>NOT APPLICABLE</b> |
| The light source module(s) shall be tamperproof.                                                                                                                                                                                                                                                                                                                                                                              | <b>NOT APPLICABLE</b> |
| 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.                                                                                                                                                                                                                                                    | <b>NOT APPLICABLE</b> |

#### REPLACEABLE LIGHT SOURCE(S)

|                                                                                                                         |                       |
|-------------------------------------------------------------------------------------------------------------------------|-----------------------|
| Light source approved according to Regulation UN No. 37 and/or Regulation UN No. 128.                                   | <b>NOT APPLICABLE</b> |
| The design of the device shall be such that the light source cannot be fixed in any other position but the correct one. | <b>NOT APPLICABLE</b> |
| The light source holder shall conform to the characteristics given in IEC Publication 60061.                            | <b>NOT APPLICABLE</b> |

#### NON-REPLACEABLE FILAMENT LAMP OR LIGHT SOURCE MODULE EQUIPPED WITH NON-REPLACEABLE FILAMENT LAMP(S)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| 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. | <b>NOT APPLICABLE</b> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|

#### INTERDEPENDENT LAMP

|                                                                                                                  |                       |
|------------------------------------------------------------------------------------------------------------------|-----------------------|
| An interdependent lamp system shall meet the requirements when all its interdependent lamps are opened together. | <b>NOT APPLICABLE</b> |
|------------------------------------------------------------------------------------------------------------------|-----------------------|

\* THE PRESENTED RESULTS REFER ONLY TO THE TESTED SAMPLE.  
 \* THE PARTIAL REPRODUCTION OF THIS REPORT WITHOUT THE PERMISSION OF IDIADA IS COMPLETELY FORBIDDEN.  
 \* MEASUREMENT UNCERTAINTY OF THE RESULTS HAS BEEN CALCULATED BY THE LABORATORY.

## HORIZONTAL INSTALLATION

### COLORIMETRIC SPECIFICATIONS

#### RED ZONE:

- Limit towards the yellow:  $y \leq 0.335$
- Limit towards the purple:  $y \geq 0.980 - x$

#### 1. STOP LAMP

| Chromatic co-ordinates<br>(reference axis) | SAMPLE A      | SAMPLE B      |
|--------------------------------------------|---------------|---------------|
| <b>x</b>                                   | <b>0.6982</b> | <b>0.6971</b> |
| <b>y</b>                                   | <b>0.3015</b> | <b>0.3028</b> |
| <b>z</b>                                   | <b>0.0003</b> | <b>0.0001</b> |

Test result: The samples tested fulfil with the colorimetric specifications within the field of the light distribution grid defined in the present Regulation. Outside this field no sharp variation of colour is observed.

#### 2. REAR POSITION LAMP

| Chromatic co-ordinates<br>(reference axis) | SAMPLE A      | SAMPLE B      |
|--------------------------------------------|---------------|---------------|
| <b>x</b>                                   | <b>0.6963</b> | <b>0.6952</b> |
| <b>y</b>                                   | <b>0.3034</b> | <b>0.3045</b> |
| <b>z</b>                                   | <b>0.0003</b> | <b>0.0003</b> |

Test result: The samples tested fulfil with the colorimetric specifications within the field of the light distribution grid defined in the present Regulation. Outside this field no sharp variation of colour is observed.

## PHOTOMETRIC SPECIFICATIONS

### 1. STOP LAMP

1.1 Luminous intensities measured after one minute of operation.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | SAMPLE A                                                                                     | SAMPLE B                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Luminous intensity in the angular field specified:<br>$260.0 \geq I(\text{cd}) \geq 0.3$<br>H = 45° outboard / 45° inboard; V = 15° upwards / 15° downwards<br>H = 45° outboard / 45° inboard; V = 15° upwards / 0° and H = 45° outboard / 20° inboard; V = 0° / 5° downwards: device installed with the H plane of the lamp with mounting height < 750 mm above the ground<br>H = 45° outboard / 45° inboard; V = 5° upwards / 15° downwards: device installed with the H plane of the lamp with mounting height > 2100 mm above the ground | <b>I<sub>max</sub> (cd) = 127.6</b><br><b>I<sub>min</sub> (cd) = 6.308</b><br><b>CORRECT</b> | <b>I<sub>max</sub> (cd) = 126.3</b><br><b>I<sub>min</sub> (cd) = 6.015</b><br><b>CORRECT</b> |

## SPATIAL LUMINOUS DISTRIBUTION TABLE

### SAMPLE A

| H→<br>V↓          | 20°                     | 10°                      | 5°                        | 0°                       | 5°                        | 10°                      | 20°                     |
|-------------------|-------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|-------------------------|
| max<br>10°<br>min |                         |                          | 260.0<br>76.28Cd<br>12.0  |                          | 260.0<br>84.85Cd<br>12.0  |                          |                         |
| max<br>5°<br>min  | 260.0<br>31.15Cd<br>6.0 | 260.0<br>69.73Cd<br>12.0 |                           | 260.0<br>104.2Cd<br>42.0 |                           | 260.0<br>88.13Cd<br>12.0 | 260.0<br>51.56Cd<br>6.0 |
| max<br>0°<br>min  |                         | 260.0<br>70.86Cd<br>21.0 | 260.0<br>96.63Cd<br>54.0  | 260.0<br>119.3Cd<br>60.0 | 260.0<br>121.1Cd<br>54.0  | 260.0<br>98.23Cd<br>21.0 |                         |
| max<br>5°<br>min  | 260.0<br>31.03Cd<br>6.0 | 260.0<br>70.64Cd<br>12.0 |                           | 260.0<br>116.3Cd<br>42.0 |                           | 260.0<br>102.5Cd<br>12.0 | 260.0<br>53.48Cd<br>6.0 |
| max<br>10°<br>min |                         |                          | 260.0<br>88.59Cd*<br>12.0 |                          | 260.0<br>102.9Cd*<br>12.0 |                          |                         |

\* THE PRESENTED RESULTS REFER ONLY TO THE TESTED SAMPLE.

\* THE PARTIAL REPRODUCTION OF THIS REPORT WITHOUT THE PERMISSION OF IDIADA IS COMPLETELY FORBIDDEN.

\* MEASUREMENT UNCERTAINTY OF THE RESULTS HAS BEEN CALCULATED BY THE LABORATORY.

# SAMPLE B

| H→<br>V↓          | 20°                     | 10°                      | 5°                        | 0°                       | 5°                        | 10°                      | 20°                     |
|-------------------|-------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|-------------------------|
| max<br>10°<br>min |                         |                          | 260.0<br>80.66Cd<br>12.0  |                          | 260.0<br>83.50Cd<br>12.0  |                          |                         |
| max<br>5°<br>min  | 260.0<br>32.92Cd<br>6.0 | 260.0<br>74.28Cd<br>12.0 |                           | 260.0<br>109.7Cd<br>42.0 |                           | 260.0<br>85.30Cd<br>12.0 | 260.0<br>47.75Cd<br>6.0 |
| max<br>0°<br>min  |                         | 260.0<br>74.34Cd<br>21.0 | 260.0<br>99.80Cd<br>54.0  | 260.0<br>122.5Cd<br>60.0 | 260.0<br>118.8Cd<br>54.0  | 260.0<br>92.99Cd<br>21.0 |                         |
| max<br>5°<br>min  | 260.0<br>32.47Cd<br>6.0 | 260.0<br>74.22Cd<br>12.0 |                           | 260.0<br>117.0Cd<br>42.0 |                           | 260.0<br>91.99Cd<br>12.0 | 260.0<br>48.21Cd<br>6.0 |
| max<br>10°<br>min |                         |                          | 260.0<br>83.96Cd*<br>12.0 |                          | 260.0<br>91.88Cd*<br>12.0 |                          |                         |

\* In the case where the lamp 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

## 1.2 Luminous intensities measured after 30 minutes of operation.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | SAMPLE A                                                                                                | SAMPLE B                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| <p>Luminous intensity in the angular field specified:</p> <p><math>260.0 \geq I(cd) \geq 0.3</math></p> <p>H = 45° outboard / 45° inboard; V = 15° upwards / 15° downwards</p> <p>H = 45° outboard / 45° inboard; V = 15° upwards / 0° and H = 45° outboard / 20° inboard; V = 0° / 5° downwards: device installed with the H plane of the lamp with mounting height &lt; 750 mm above the ground</p> <p>H = 45° outboard / 45° inboard; V = 5° upwards / 15° downwards: device installed with the H plane of the lamp with mounting height &gt; 2100 mm above the ground</p>                                                                                                                                                                                                                                                                    | <p><b>I<sub>max</sub> (cd) = 111.6</b><br/> <b>I<sub>min</sub> (cd) = 5.515</b><br/> <b>CORRECT</b></p> | <p><b>I<sub>max</sub> (cd) = 110.1</b><br/> <b>I<sub>min</sub> (cd) = 5.244</b><br/> <b>CORRECT</b></p> |
| <p>In case of failure of any light source in a single lamp containing more than one light source, at least one of the following provisions shall apply: *</p> <p>a. <del>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.</del></p> <p>b. The light intensity complies with the minimum intensity required in the table of standard light distribution in space as shown in Regulation</p> <p>e. <del>The light intensity complies in the axis of reference with the 50% 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.</del></p> <p style="text-align: right;">*Strike out what does not apply</p> | <p><b>CORRECT</b></p>                                                                                   | <p><b>CORRECT</b></p>                                                                                   |

\* THE PRESENTED RESULTS REFER ONLY TO THE TESTED SAMPLE.  
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\* MEASUREMENT UNCERTAINTY OF THE RESULTS HAS BEEN CALCULATED BY THE LABORATORY.

# SPATIAL LUMINOUS DISTRIBUTION TABLE

## SAMPLE A

| H→<br>V↓          | 20°                     | 10°                      | 5°                        | 0°                       | 5°                        | 10°                      | 20°                     |
|-------------------|-------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|-------------------------|
| max<br>10°<br>min |                         |                          | 260.0<br>66.69Cd<br>12.0  |                          | 260.0<br>74.18Cd<br>12.0  |                          |                         |
| max<br>5°<br>min  | 260.0<br>27.23Cd<br>6.0 | 260.0<br>60.96Cd<br>12.0 |                           | 260.0<br>91.09Cd<br>42.0 |                           | 260.0<br>77.05Cd<br>12.0 | 260.0<br>45.08Cd<br>6.0 |
| max<br>0°<br>min  |                         | 260.0<br>61.95Cd<br>21.0 | 260.0<br>84.48Cd<br>54.0  | 260.0<br>104.3Cd<br>60.0 | 260.0<br>105.9Cd<br>54.0  | 260.0<br>85.88Cd<br>21.0 |                         |
| max<br>5°<br>min  | 260.0<br>27.13Cd<br>6.0 | 260.0<br>61.76Cd<br>12.0 |                           | 260.0<br>101.7Cd<br>42.0 |                           | 260.0<br>89.58Cd<br>12.0 | 260.0<br>46.76Cd<br>6.0 |
| max<br>10°<br>min |                         |                          | 260.0<br>77.45Cd*<br>12.0 |                          | 260.0<br>89.97Cd*<br>12.0 |                          |                         |

## SAMPLE B

| H→<br>V↓          | 20°                     | 10°                      | 5°                        | 0°                       | 5°                        | 10°                      | 20°                     |
|-------------------|-------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|-------------------------|
| max<br>10°<br>min |                         |                          | 260.0<br>70.32Cd<br>12.0  |                          | 260.0<br>72.80Cd<br>12.0  |                          |                         |
| max<br>5°<br>min  | 260.0<br>28.70Cd<br>6.0 | 260.0<br>64.76Cd<br>12.0 |                           | 260.0<br>95.60Cd<br>42.0 |                           | 260.0<br>74.37Cd<br>12.0 | 260.0<br>41.63Cd<br>6.0 |
| max<br>0°<br>min  |                         | 260.0<br>64.81Cd<br>21.0 | 260.0<br>87.01Cd<br>54.0  | 260.0<br>106.8Cd<br>60.0 | 260.0<br>103.6Cd<br>54.0  | 260.0<br>81.07Cd<br>21.0 |                         |
| max<br>5°<br>min  | 260.0<br>28.31Cd<br>6.0 | 260.0<br>64.71Cd<br>12.0 |                           | 260.0<br>102.0Cd<br>42.0 |                           | 260.0<br>80.20Cd<br>12.0 | 260.0<br>42.03Cd<br>6.0 |
| max<br>10°<br>min |                         |                          | 260.0<br>73.20Cd*<br>12.0 |                          | 260.0<br>80.10Cd*<br>12.0 |                          |                         |

\*In the case where the lamp 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

## 2. REAR POSITION LAMP

2.1 Luminous intensities measured after one minute of operation.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | SAMPLE A                                                                                     | SAMPLE B                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Luminous intensity in the angular field specified:<br>$17.0 \geq I(\text{cd}) \geq 0.05$<br>H = 80° outboard / 45° inboard; V = 15° upwards / 15° downwards<br>H = 80° outboard / 45° inboard; V = 15° upwards / 0° and H = 80° outboard / 20° inboard; V = 0° / 5° downwards: device installed with the H plane of the lamp with mounting height < 750 mm above the ground<br>H = 80° outboard / 45° inboard; V = 5° upwards / 15° downwards: device installed with the H plane of the lamp with mounting height > 2100 mm above the ground | $I_{\text{max}}(\text{cd}) = 8.034$<br>$I_{\text{min}}(\text{cd}) = 0.079$<br><b>CORRECT</b> | $I_{\text{max}}(\text{cd}) = 8.156$<br>$I_{\text{min}}(\text{cd}) = 0.083$<br><b>CORRECT</b> |

### SPATIAL LUMINOUS DISTRIBUTION TABLE

#### SAMPLE A

| H→<br>V↓          | 20°                    | 10°                    | 5°                      | 0°                     | 5°                      | 10°                    | 20°                    |
|-------------------|------------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|------------------------|
| max<br>10°<br>min |                        |                        | 17.0<br>4.760Cd<br>0.8  |                        | 17.0<br>5.325Cd<br>0.8  |                        |                        |
| max<br>5°<br>min  | 17.0<br>1.971Cd<br>0.4 | 17.0<br>4.348Cd<br>0.8 |                         | 17.0<br>6.536Cd<br>2.8 |                         | 17.0<br>5.545Cd<br>0.8 | 17.0<br>3.236Cd<br>0.4 |
| max<br>0°<br>min  |                        | 17.0<br>4.415Cd<br>1.4 | 17.0<br>6.052Cd<br>3.6  | 17.0<br>7.478Cd<br>4.0 | 17.0<br>7.587Cd<br>3.6  | 17.0<br>6.154Cd<br>1.4 |                        |
| max<br>5°<br>min  | 60.0<br>1.965Cd<br>0.4 | 60.0<br>4.411Cd<br>0.8 |                         | 60.0<br>7.284Cd<br>2.8 |                         | 60.0<br>6.440Cd<br>0.8 | 60.0<br>3.366Cd<br>0.4 |
| max<br>10°<br>min |                        |                        | 60.0<br>5.567Cd*<br>0.8 |                        | 60.0<br>6.436Cd*<br>0.8 |                        |                        |

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\* MEASUREMENT UNCERTAINTY OF THE RESULTS HAS BEEN CALCULATED BY THE LABORATORY.

**SAMPLE B**

| H→<br>V↓          | 20°                    | 10°                    | 5°                      | 0°                     | 5°                      | 10°                    | 20°                    |
|-------------------|------------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|------------------------|
| max<br>10°<br>min |                        |                        | 17.0<br>5.177Cd<br>0.8  |                        | 17.0<br>5.377Cd<br>0.8  |                        |                        |
| max<br>5°<br>min  | 17.0<br>2.126Cd<br>0.4 | 17.0<br>4.767Cd<br>0.8 |                         | 17.0<br>7.045Cd<br>2.8 |                         | 17.0<br>5.495Cd<br>0.8 | 17.0<br>3.081Cd<br>0.4 |
| max<br>0°<br>min  |                        | 17.0<br>4.761Cd<br>1.4 | 17.0<br>6.419Cd<br>3.6  | 17.0<br>7.869Cd<br>4.0 | 17.0<br>7.645Cd<br>3.6  | 17.0<br>6.000Cd<br>1.4 |                        |
| max<br>5°<br>min  | 60.0<br>2.105Cd<br>0.4 | 60.0<br>4.771Cd<br>0.8 |                         | 60.0<br>7.529Cd<br>2.8 |                         | 60.0<br>5.959Cd<br>0.8 | 60.0<br>3.127Cd<br>0.4 |
| max<br>10°<br>min |                        |                        | 60.0<br>5.442Cd*<br>0.8 |                        | 60.0<br>5.947Cd*<br>0.8 |                        |                        |

\* In the case where the lamp 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

**2.2 Luminous intensities measured after 30 minutes of operation.**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | SAMPLE A                                                                                                | SAMPLE B                                                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| <p>Luminous intensity in the angular field specified:</p> <p><math>17.0 \geq I(\text{cd}) \geq 0.05</math></p> <p>H = 80° outboard / 45° inboard; V = 15° upwards / 15° downwards</p> <p>H = 80° outboard / 45° inboard; V = 15° upwards / 0° and H = 80° outboard / 20° inboard; V = 0° / 5° downwards: device installed with the H plane of the lamp with mounting height &lt; 750 mm above the ground</p> <p>H = 80° outboard / 45° inboard; V = 5° upwards / 15° downwards: device installed with the H plane of the lamp with mounting height &gt; 2100 mm above the ground</p>                                                                                                                                                                                                                                                               | <p><b>I<sub>max</sub> (cd) = 7.968</b><br/> <b>I<sub>min</sub> (cd) = 0.078</b><br/> <b>CORRECT</b></p> | <p><b>I<sub>max</sub> (cd) = 8.089</b><br/> <b>I<sub>min</sub> (cd) = 0.082</b><br/> <b>CORRECT</b></p> |
| <p>In case of failure of any light source in a single lamp containing more than one light source, at least one of the following provisions shall apply: *</p> <p>a. <del>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.</del></p> <p>b. The light intensity complies with the minimum intensity required in the table of standard light distribution in space as shown in Regulation.</p> <p>c. <del>The light intensity complies in the axis of reference with the 50% 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.</del></p> <p style="text-align: right;">* Strike out what does not apply</p> | <p><b>CORRECT</b></p>                                                                                   | <p><b>CORRECT</b></p>                                                                                   |

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\* MEASUREMENT UNCERTAINTY OF THE RESULTS HAS BEEN CALCULATED BY THE LABORATORY.

# SPATIAL LUMINOUS DISTRIBUTION TABLE

## SAMPLE A

| H→<br>V↓          | 20°                    | 10°                    | 5°                      | 0°                     | 5°                      | 10°                    | 20°                    |
|-------------------|------------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|------------------------|
| max<br>10°<br>min |                        |                        | 17.0<br>4.721Cd<br>0.8  |                        | 17.0<br>5.281Cd<br>0.8  |                        |                        |
| max<br>5°<br>min  | 17.0<br>1.955Cd<br>0.4 | 17.0<br>4.312Cd<br>0.8 |                         | 17.0<br>6.482Cd<br>2.8 |                         | 17.0<br>5.499Cd<br>0.8 | 17.0<br>3.209Cd<br>0.4 |
| max<br>0°<br>min  |                        | 17.0<br>4.378Cd<br>1.4 | 17.0<br>6.002Cd<br>3.6  | 17.0<br>7.416Cd<br>4.0 | 17.0<br>7.524Cd<br>3.6  | 17.0<br>6.103Cd<br>1.4 |                        |
| max<br>5°<br>min  | 60.0<br>1.949Cd<br>0.4 | 60.0<br>4.374Cd<br>0.8 |                         | 60.0<br>7.224Cd<br>2.8 |                         | 60.0<br>6.387Cd<br>0.8 | 60.0<br>3.338Cd<br>0.4 |
| max<br>10°<br>min |                        |                        | 60.0<br>5.521Cd*<br>0.8 |                        | 60.0<br>6.383Cd*<br>0.8 |                        |                        |

## SAMPLE B

| H→<br>V↓          | 20°                    | 10°                    | 5°                      | 0°                     | 5°                      | 10°                    | 20°                    |
|-------------------|------------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|------------------------|
| max<br>10°<br>min |                        |                        | 17.0<br>5.134Cd<br>0.8  |                        | 17.0<br>5.333Cd<br>0.8  |                        |                        |
| max<br>5°<br>min  | 17.0<br>2.108Cd<br>0.4 | 17.0<br>4.728Cd<br>0.8 |                         | 17.0<br>6.987Cd<br>2.8 |                         | 17.0<br>5.450Cd<br>0.8 | 17.0<br>3.056Cd<br>0.4 |
| max<br>0°<br>min  |                        | 17.0<br>4.722Cd<br>1.4 | 17.0<br>6.366Cd<br>3.6  | 17.0<br>7.804Cd<br>4.0 | 17.0<br>7.582Cd<br>3.6  | 17.0<br>5.950Cd<br>1.4 |                        |
| max<br>5°<br>min  | 60.0<br>2.088Cd<br>0.4 | 60.0<br>4.732Cd<br>0.8 |                         | 60.0<br>7.467Cd<br>2.8 |                         | 60.0<br>5.910Cd<br>0.8 | 60.0<br>3.101Cd<br>0.4 |
| max<br>10°<br>min |                        |                        | 60.0<br>5.397Cd*<br>0.8 |                        | 60.0<br>5.898Cd*<br>0.8 |                        |                        |

\* In the case where the lamp 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

# **ADDITIONAL MEASUREMENTS FOR THE REAR POSITION LAMPS RECIPROCALLY INCORPORATED WITH A STOP LAMP**

## **SAMPLE A**

| H→<br>V↓ | 10°                                                                          | 5°                                                                           | 0°                                                                           | 5°                                                                           | 10°                                                                          |
|----------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| 5°       | $I_p = 4.312\text{Cd}$<br>$I_s = 60.96\text{Cd}$<br>$I_s/I_p = 14.14 \geq 5$ |                                                                              | $I_p = 6.482\text{Cd}$<br>$I_s = 91.09\text{Cd}$<br>$I_s/I_p = 14.05 \geq 5$ |                                                                              | $I_p = 5.499\text{Cd}$<br>$I_s = 77.05\text{Cd}$<br>$I_s/I_p = 14.01 \geq 5$ |
| 0°       | $I_p = 4.378\text{Cd}$<br>$I_s = 61.95\text{Cd}$<br>$I_s/I_p = 14.15 \geq 5$ | $I_p = 6.002\text{Cd}$<br>$I_s = 84.48\text{Cd}$<br>$I_s/I_p = 14.08 \geq 5$ | $I_p = 7.416\text{Cd}$<br>$I_s = 104.3\text{Cd}$<br>$I_s/I_p = 14.06 \geq 5$ | $I_p = 7.524\text{Cd}$<br>$I_s = 105.9\text{Cd}$<br>$I_s/I_p = 14.07 \geq 5$ | $I_p = 6.103\text{Cd}$<br>$I_s = 85.88\text{Cd}$<br>$I_s/I_p = 14.07 \geq 5$ |
| 5°       | $I_p = 4.374\text{Cd}$<br>$I_s = 61.76\text{Cd}$<br>$I_s/I_p = 14.12 \geq 5$ |                                                                              | $I_p = 7.224\text{Cd}$<br>$I_s = 101.7\text{Cd}$<br>$I_s/I_p = 14.08 \geq 5$ |                                                                              | $I_p = 6.387\text{Cd}$<br>$I_s = 89.58\text{Cd}$<br>$I_s/I_p = 14.03 \geq 5$ |

## **SAMPLE B**

| H→<br>V↓ | 10°                                                                          | 5°                                                                           | 0°                                                                           | 5°                                                                           | 10°                                                                          |
|----------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| 5°       | $I_p = 4.728\text{Cd}$<br>$I_s = 64.76\text{Cd}$<br>$I_s/I_p = 13.70 \geq 5$ |                                                                              | $I_p = 6.987\text{Cd}$<br>$I_s = 95.60\text{Cd}$<br>$I_s/I_p = 13.68 \geq 5$ |                                                                              | $I_p = 5.450\text{Cd}$<br>$I_s = 74.37\text{Cd}$<br>$I_s/I_p = 13.65 \geq 5$ |
| 0°       | $I_p = 4.722\text{Cd}$<br>$I_s = 64.81\text{Cd}$<br>$I_s/I_p = 13.73 \geq 5$ | $I_p = 6.366\text{Cd}$<br>$I_s = 87.01\text{Cd}$<br>$I_s/I_p = 13.67 \geq 5$ | $I_p = 7.804\text{Cd}$<br>$I_s = 106.8\text{Cd}$<br>$I_s/I_p = 13.69 \geq 5$ | $I_p = 7.582\text{Cd}$<br>$I_s = 103.6\text{Cd}$<br>$I_s/I_p = 13.66 \geq 5$ | $I_p = 5.950\text{Cd}$<br>$I_s = 81.07\text{Cd}$<br>$I_s/I_p = 13.63 \geq 5$ |
| 5°       | $I_p = 4.732\text{Cd}$<br>$I_s = 64.71\text{Cd}$<br>$I_s/I_p = 13.67 \geq 5$ |                                                                              | $I_p = 7.467\text{Cd}$<br>$I_s = 102.0\text{Cd}$<br>$I_s/I_p = 13.66 \geq 5$ |                                                                              | $I_p = 5.910\text{Cd}$<br>$I_s = 80.20\text{Cd}$<br>$I_s/I_p = 13.57 \geq 5$ |

The relation  $I_s/I_p$  is  $\geq 5$  in the required field.

$I_p$ : Intensity of the position lamp.

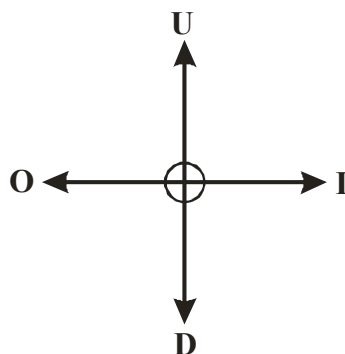
$I_s$ : Intensity of the position lamp + stop-lamp simultaneously.

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# ILLUMINATING SURFACE



|                    | Upper boundary<br>"U" (mm) | Down boundary<br>"D" (mm) | Inner boundary<br>"I" (mm) | Outer boundary<br>"O" (mm) |
|--------------------|----------------------------|---------------------------|----------------------------|----------------------------|
| Stop lamp          | 9                          | 9                         | 101                        | 101                        |
| Rear position lamp | 9                          | 9                         | 101                        | 101                        |

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## VERTICAL INSTALLATION

### COLORIMETRIC SPECIFICATIONS

#### RED ZONE:

- Limit towards the yellow:  $y \leq 0.335$
- Limit towards the purple:  $y \geq 0.980 - x$

#### 1. STOP LAMP

| Chromatic co-ordinates<br>(reference axis) | SAMPLE A      | SAMPLE B      |
|--------------------------------------------|---------------|---------------|
| <b>x</b>                                   | <b>0.6982</b> | <b>0.6971</b> |
| <b>y</b>                                   | <b>0.3015</b> | <b>0.3028</b> |
| <b>z</b>                                   | <b>0.0003</b> | <b>0.0001</b> |

Test result: The samples tested fulfil with the colorimetric specifications within the field of the light distribution grid defined in the present Regulation. Outside this field no sharp variation of colour is observed.

#### 2. REAR POSITION LAMP

| Chromatic co-ordinates<br>(reference axis) | SAMPLE A      | SAMPLE B      |
|--------------------------------------------|---------------|---------------|
| <b>x</b>                                   | <b>0.6963</b> | <b>0.6952</b> |
| <b>y</b>                                   | <b>0.3034</b> | <b>0.3045</b> |
| <b>z</b>                                   | <b>0.0003</b> | <b>0.0003</b> |

Test result: The samples tested fulfil with the colorimetric specifications within the field of the light distribution grid defined in the present Regulation. Outside this field no sharp variation of colour is observed.

## PHOTOMETRIC SPECIFICATIONS

### 1. STOP LAMP

1.3 Luminous intensities measured after one minute of operation.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | SAMPLE A                                                                                                                         | SAMPLE B                                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Luminous intensity in the angular field specified:<br>$260.0 \geq I(\text{cd}) \geq 0.3$<br>H = 45° outboard / 45° inboard; V = 15° upwards / 15° downwards<br>H = 45° outboard / 45° inboard; V = 15° upwards / 0° and H = 45° outboard / 20° inboard; V = 0° / 5° downwards: device installed with the H plane of the lamp with mounting height < 750 mm above the ground<br>H = 45° outboard / 45° inboard; V = 5° upwards / 15° downwards: device installed with the H plane of the lamp with mounting height > 2100 mm above the ground | <b><math>I_{\text{max}}(\text{cd}) = 128.3</math></b><br><b><math>I_{\text{min}}(\text{cd}) = 9.358</math></b><br><b>CORRECT</b> | <b><math>I_{\text{max}}(\text{cd}) = 126.4</math></b><br><b><math>I_{\text{min}}(\text{cd}) = 9.300</math></b><br><b>CORRECT</b> |

## SPATIAL LUMINOUS DISTRIBUTION TABLE

### SAMPLE A

| H→<br>V↓          | 20°                     | 10°                      | 5°                        | 0°                       | 5°                        | 10°                      | 20°                     |
|-------------------|-------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|-------------------------|
| max<br>10°<br>min |                         |                          | 260.0<br>73.24Cd<br>12.0  |                          | 260.0<br>72.84Cd<br>12.0  |                          |                         |
| max<br>5°<br>min  | 260.0<br>49.77Cd<br>6.0 | 260.0<br>89.79Cd<br>12.0 |                           | 260.0<br>99.54Cd<br>42.0 |                           | 260.0<br>78.64Cd<br>12.0 | 260.0<br>39.21Cd<br>6.0 |
| max<br>0°<br>min  |                         | 260.0<br>99.60Cd<br>21.0 | 260.0<br>118.1Cd<br>54.0  | 260.0<br>121.4Cd<br>60.0 | 260.0<br>106.2Cd<br>54.0  | 260.0<br>86.08Cd<br>21.0 |                         |
| max<br>5°<br>min  | 260.0<br>50.97Cd<br>6.0 | 260.0<br>102.0Cd<br>12.0 |                           | 260.0<br>120.3Cd<br>42.0 |                           | 260.0<br>84.40Cd<br>12.0 | 260.0<br>40.33Cd<br>6.0 |
| max<br>10°<br>min |                         |                          | 260.0<br>100.3Cd*<br>12.0 |                          | 260.0<br>86.86Cd*<br>12.0 |                          |                         |

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# SAMPLE B

| H→<br>V↓          | 20°                     | 10°                      | 5°                        | 0°                       | 5°                        | 10°                      | 20°                     |
|-------------------|-------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------------------------|-------------------------|
| max<br>10°<br>min |                         |                          | 260.0<br>76.17Cd<br>12.0  |                          | 260.0<br>76.72Cd<br>12.0  |                          |                         |
| max<br>5°<br>min  | 260.0<br>45.64Cd<br>6.0 | 260.0<br>84.94Cd<br>12.0 |                           | 260.0<br>102.6Cd<br>42.0 |                           | 260.0<br>81.92Cd<br>12.0 | 260.0<br>40.11Cd<br>6.0 |
| max<br>0°<br>min  |                         | 260.0<br>96.26Cd<br>21.0 | 260.0<br>118.1Cd<br>54.0  | 260.0<br>124.5Cd<br>60.0 | 260.0<br>111.4Cd<br>54.0  | 260.0<br>87.34Cd<br>21.0 |                         |
| max<br>5°<br>min  | 260.0<br>46.10Cd<br>6.0 | 260.0<br>90.35Cd<br>12.0 |                           | 260.0<br>117.4Cd<br>42.0 |                           | 260.0<br>83.28Cd<br>12.0 | 260.0<br>40.67Cd<br>6.0 |
| max<br>10°<br>min |                         |                          | 260.0<br>89.74Cd*<br>12.0 |                          | 260.0<br>84.29Cd*<br>12.0 |                          |                         |

\* In the case where the lamp 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

## 1.4 Luminous intensities measured after 30 minutes of operation.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | SAMPLE A                                                                                                | SAMPLE B                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| <p>Luminous intensity in the angular field specified:</p> <p style="text-align: center;"><math>260.0 \geq I(cd) \geq 0.3</math></p> <p>H = 45° outboard / 45° inboard; V = 15° upwards / 15° downwards</p> <p>H = 45° outboard / 45° inboard; V = 15° upwards / 0° and H = 45° outboard / 20° inboard; V = 0° / 5° downwards: device installed with the H plane of the lamp with mounting height &lt; 750 mm above the ground</p> <p>H = 45° outboard / 45° inboard; V = 5° upwards / 15° downwards: device installed with the H plane of the lamp with mounting height &gt; 2100 mm above the ground</p>                                                                                                                                                                                                                                        | <p><b>I<sub>max</sub> (cd) = 112.4</b><br/> <b>I<sub>min</sub> (cd) = 8.194</b><br/> <b>CORRECT</b></p> | <p><b>I<sub>max</sub> (cd) = 110.4</b><br/> <b>I<sub>min</sub> (cd) = 8.120</b><br/> <b>CORRECT</b></p> |
| <p>In case of failure of any light source in a single lamp containing more than one light source, at least one of the following provisions shall apply: *</p> <p>d. <del>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.</del></p> <p>e. The light intensity complies with the minimum intensity required in the table of standard light distribution in space as shown in Regulation</p> <p>f. <del>The light intensity complies in the axis of reference with the 50% 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.</del></p> <p style="text-align: right;">*Strike out what does not apply</p> | <p><b>CORRECT</b></p>                                                                                   | <p><b>CORRECT</b></p>                                                                                   |

\* THE PRESENTED RESULTS REFER ONLY TO THE TESTED SAMPLE.  
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\* MEASUREMENT UNCERTAINTY OF THE RESULTS HAS BEEN CALCULATED BY THE LABORATORY.

# SPATIAL LUMINOUS DISTRIBUTION TABLE

## SAMPLE A

| H→<br>V↓          | 20°                            | 10°                             | 5°                               | 0°                              | 5°                               | 10°                             | 20°                            |
|-------------------|--------------------------------|---------------------------------|----------------------------------|---------------------------------|----------------------------------|---------------------------------|--------------------------------|
| max<br>10°<br>min |                                |                                 | 260.0<br><b>64.13Cd</b><br>12.0  |                                 | 260.0<br><b>63.78Cd</b><br>12.0  |                                 |                                |
| max<br>5°<br>min  | 260.0<br><b>43.58Cd</b><br>6.0 | 260.0<br><b>78.62Cd</b><br>12.0 |                                  | 260.0<br><b>87.16Cd</b><br>42.0 |                                  | 260.0<br><b>68.86Cd</b><br>12.0 | 260.0<br><b>34.33Cd</b><br>6.0 |
| max<br>0°<br>min  |                                | 260.0<br><b>87.21Cd</b><br>21.0 | 260.0<br><b>103.4Cd</b><br>54.0  | 260.0<br><b>106.3Cd</b><br>60.0 | 260.0<br><b>93.03Cd</b><br>54.0  | 260.0<br><b>75.37Cd</b><br>21.0 |                                |
| max<br>5°<br>min  | 260.0<br><b>44.63Cd</b><br>6.0 | 260.0<br><b>89.28Cd</b><br>12.0 |                                  | 260.0<br><b>105.3Cd</b><br>42.0 |                                  | 260.0<br><b>73.90Cd</b><br>12.0 | 260.0<br><b>35.31Cd</b><br>6.0 |
| max<br>10°<br>min |                                |                                 | 260.0<br><b>87.85Cd*</b><br>12.0 |                                 | 260.0<br><b>76.06Cd*</b><br>12.0 |                                 |                                |

## SAMPLE B

| H→<br>V↓          | 20°                            | 10°                             | 5°                               | 0°                              | 5°                               | 10°                             | 20°                            |
|-------------------|--------------------------------|---------------------------------|----------------------------------|---------------------------------|----------------------------------|---------------------------------|--------------------------------|
| max<br>10°<br>min |                                |                                 | 260.0<br><b>66.50Cd</b><br>12.0  |                                 | 260.0<br><b>66.98Cd</b><br>12.0  |                                 |                                |
| max<br>5°<br>min  | 260.0<br><b>39.85Cd</b><br>6.0 | 260.0<br><b>74.16Cd</b><br>12.0 |                                  | 260.0<br><b>89.57Cd</b><br>42.0 |                                  | 260.0<br><b>71.52Cd</b><br>12.0 | 260.0<br><b>35.02Cd</b><br>6.0 |
| max<br>0°<br>min  |                                | 260.0<br><b>84.04Cd</b><br>21.0 | 260.0<br><b>103.1Cd</b><br>54.0  | 260.0<br><b>108.7Cd</b><br>60.0 | 260.0<br><b>97.27Cd</b><br>54.0  | 260.0<br><b>76.26Cd</b><br>21.0 |                                |
| max<br>5°<br>min  | 260.0<br><b>40.25Cd</b><br>6.0 | 260.0<br><b>78.88Cd</b><br>12.0 |                                  | 260.0<br><b>102.5Cd</b><br>42.0 |                                  | 260.0<br><b>72.71Cd</b><br>12.0 | 260.0<br><b>35.51Cd</b><br>6.0 |
| max<br>10°<br>min |                                |                                 | 260.0<br><b>78.35Cd*</b><br>12.0 |                                 | 260.0<br><b>73.59Cd*</b><br>12.0 |                                 |                                |

\* In the case where the lamp 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

## 2. REAR POSITION LAMP

2.3 Luminous intensities measured after one minute of operation.

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | SAMPLE A                                                                                                                         | SAMPLE B                                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Luminous intensity in the angular field specified:<br>$17.0 \geq I(\text{cd}) \geq 0.05$<br>H = 80° outboard / 45° inboard; V = 15° upwards / 15° downwards<br>H = 80° outboard / 45° inboard; V = 15° upwards / 0° and H = 80° outboard / 20° inboard; V = 0° / 5° downwards: device installed with the H plane of the lamp with mounting height < 750 mm above the ground<br>H = 80° outboard / 45° inboard; V = 5° upwards / 15° downwards: device installed with the H plane of the lamp with mounting height > 2100 mm above the ground | <b><math>I_{\text{max}}(\text{cd}) = 8.070</math></b><br><b><math>I_{\text{min}}(\text{cd}) = 0.072</math></b><br><b>CORRECT</b> | <b><math>I_{\text{max}}(\text{cd}) = 8.173</math></b><br><b><math>I_{\text{min}}(\text{cd}) = 0.072</math></b><br><b>CORRECT</b> |

### SPATIAL LUMINOUS DISTRIBUTION TABLE

#### SAMPLE A

| H→<br>V↓          | 20°                    | 10°                    | 5°                      | 0°                     | 5°                      | 10°                    | 20°                    |
|-------------------|------------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|------------------------|
| max<br>10°<br>min |                        |                        | 17.0<br>4.546Cd<br>0.8  |                        | 17.0<br>4.527Cd<br>0.8  |                        |                        |
| max<br>5°<br>min  | 17.0<br>3.105Cd<br>0.4 | 17.0<br>5.615Cd<br>0.8 |                         | 17.0<br>6.219Cd<br>2.8 |                         | 17.0<br>4.912Cd<br>0.8 | 17.0<br>2.456Cd<br>0.4 |
| max<br>0°<br>min  |                        | 17.0<br>6.216Cd<br>1.4 | 17.0<br>7.370Cd<br>3.6  | 17.0<br>7.601Cd<br>4.0 | 17.0<br>6.662Cd<br>3.6  | 17.0<br>5.418Cd<br>1.4 |                        |
| max<br>5°<br>min  | 60.0<br>3.202Cd<br>0.4 | 60.0<br>6.361Cd<br>0.8 |                         | 60.0<br>7.530Cd<br>2.8 |                         | 60.0<br>5.317Cd<br>0.8 | 60.0<br>2.545Cd<br>0.4 |
| max<br>10°<br>min |                        |                        | 60.0<br>6.309Cd*<br>0.8 |                        | 60.0<br>5.475Cd*<br>0.8 |                        |                        |

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\* MEASUREMENT UNCERTAINTY OF THE RESULTS HAS BEEN CALCULATED BY THE LABORATORY.

**SAMPLE B**

| H→<br>V↓          | 20°                    | 10°                    | 5°                      | 0°                     | 5°                      | 10°                    | 20°                    |
|-------------------|------------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|------------------------|
| max<br>10°<br>min |                        |                        | 17.0<br>4.876Cd<br>0.8  |                        | 17.0<br>4.907Cd<br>0.8  |                        |                        |
| max<br>5°<br>min  | 17.0<br>2.947Cd<br>0.4 | 17.0<br>5.476Cd<br>0.8 |                         | 17.0<br>6.591Cd<br>2.8 |                         | 17.0<br>5.267Cd<br>0.8 | 17.0<br>2.590Cd<br>0.4 |
| max<br>0°<br>min  |                        | 17.0<br>6.212Cd<br>1.4 | 17.0<br>7.587Cd<br>3.6  | 17.0<br>7.992Cd<br>4.0 | 17.0<br>7.171Cd<br>3.6  | 17.0<br>5.622Cd<br>1.4 |                        |
| max<br>5°<br>min  | 60.0<br>2.997Cd<br>0.4 | 60.0<br>5.837Cd<br>0.8 |                         | 60.0<br>7.562Cd<br>2.8 |                         | 60.0<br>5.380Cd<br>0.8 | 60.0<br>2.637Cd<br>0.4 |
| max<br>10°<br>min |                        |                        | 60.0<br>5.822Cd*<br>0.8 |                        | 60.0<br>5.456Cd*<br>0.8 |                        |                        |

\* In the case where the lamp 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

**2.4 Luminous intensities measured after 30 minutes of operation.**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | SAMPLE A                                                                                                    | SAMPLE B                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| <p>Luminous intensity in the angular field specified:</p> <p><math>17.0 \geq I(\text{cd}) \geq 0.05</math></p> <p>H = 80° outboard / 45° inboard; V = 15° upwards / 15° downwards</p> <p>H = 80° outboard / 45° inboard; V = 15° upwards / 0° and H = 80° outboard / 20° inboard; V = 0° / 5° downwards: device installed with the H plane of the lamp with mounting height &lt; 750 mm above the ground</p> <p>H = 80° outboard / 45° inboard; V = 5° upwards / 15° downwards: device installed with the H plane of the lamp with mounting height &gt; 2100 mm above the ground</p>                                                                                                                                                                                                                                                               | <p><b>I<sub>max</sub> (cd) = 8.002</b></p> <p><b>I<sub>min</sub> (cd) = 0.071</b></p> <p><b>CORRECT</b></p> | <p><b>I<sub>max</sub> (cd) = 8.101</b></p> <p><b>I<sub>min</sub> (cd) = 0.071</b></p> <p><b>CORRECT</b></p> |
| <p>In case of failure of any light source in a single lamp containing more than one light source, at least one of the following provisions shall apply: *</p> <p>d. <del>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.</del></p> <p>e. The light intensity complies with the minimum intensity required in the table of standard light distribution in space as shown in Regulation.</p> <p>f. <del>The light intensity complies in the axis of reference with the 50% 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.</del></p> <p style="text-align: right;">* Strike out what does not apply</p> | <p><b>CORRECT</b></p>                                                                                       | <p><b>CORRECT</b></p>                                                                                       |

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\* MEASUREMENT UNCERTAINTY OF THE RESULTS HAS BEEN CALCULATED BY THE LABORATORY.

# SPATIAL LUMINOUS DISTRIBUTION TABLE

## SAMPLE A

| H→<br>V↓          | 20°                    | 10°                    | 5°                      | 0°                     | 5°                      | 10°                    | 20°                    |
|-------------------|------------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|------------------------|
| max<br>10°<br>min |                        |                        | 17.0<br>4.508Cd<br>0.8  |                        | 17.0<br>4.489Cd<br>0.8  |                        |                        |
| max<br>5°<br>min  | 17.0<br>3.079Cd<br>0.4 | 17.0<br>5.568Cd<br>0.8 |                         | 17.0<br>6.167Cd<br>2.8 |                         | 17.0<br>4.871Cd<br>0.8 | 17.0<br>2.435Cd<br>0.4 |
| max<br>0°<br>min  |                        | 17.0<br>6.164Cd<br>1.4 | 17.0<br>7.308Cd<br>3.6  | 17.0<br>7.537Cd<br>4.0 | 17.0<br>6.606Cd<br>3.6  | 17.0<br>5.372Cd<br>1.4 |                        |
| max<br>5°<br>min  | 60.0<br>3.175Cd<br>0.4 | 60.0<br>6.307Cd<br>0.8 |                         | 60.0<br>7.467Cd<br>2.8 |                         | 60.0<br>5.272Cd<br>0.8 | 60.0<br>2.524Cd<br>0.4 |
| max<br>10°<br>min |                        |                        | 60.0<br>6.256Cd*<br>0.8 |                        | 60.0<br>5.429Cd*<br>0.8 |                        |                        |

## SAMPLE B

| H→<br>V↓          | 20°                    | 10°                    | 5°                      | 0°                     | 5°                      | 10°                    | 20°                    |
|-------------------|------------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|------------------------|
| max<br>10°<br>min |                        |                        | 17.0<br>4.833Cd<br>0.8  |                        | 17.0<br>4.864Cd<br>0.8  |                        |                        |
| max<br>5°<br>min  | 17.0<br>2.921Cd<br>0.4 | 17.0<br>5.428Cd<br>0.8 |                         | 17.0<br>6.533Cd<br>2.8 |                         | 17.0<br>5.221Cd<br>0.8 | 17.0<br>2.567Cd<br>0.4 |
| max<br>0°<br>min  |                        | 17.0<br>6.158Cd<br>1.4 | 17.0<br>7.512Cd<br>3.6  | 17.0<br>7.922Cd<br>4.0 | 17.0<br>7.108Cd<br>3.6  | 17.0<br>5.573Cd<br>1.4 |                        |
| max<br>5°<br>min  | 60.0<br>2.971Cd<br>0.4 | 60.0<br>5.786Cd<br>0.8 |                         | 60.0<br>7.496Cd<br>2.8 |                         | 60.0<br>5.333Cd<br>0.8 | 60.0<br>2.614Cd<br>0.4 |
| max<br>10°<br>min |                        |                        | 60.0<br>5.771Cd*<br>0.8 |                        | 60.0<br>5.408Cd*<br>0.8 |                        |                        |

\* In the case where the lamp 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

# **ADDITIONAL MEASUREMENTS FOR THE REAR POSITION LAMPS RECIPROCALLY INCORPORATED WITH A STOP LAMP**

## **SAMPLE A**

| H→<br>V↓ | 10°                                                                          | 5°                                                                           | 0°                                                                           | 5°                                                                           | 10°                                                                          |
|----------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| 5°       | $I_p = 5.568\text{Cd}$<br>$I_s = 78.62\text{Cd}$<br>$I_s/I_p = 14.12 \geq 5$ |                                                                              | $I_p = 6.167\text{Cd}$<br>$I_s = 87.16\text{Cd}$<br>$I_s/I_p = 14.13 \geq 5$ |                                                                              | $I_p = 4.871\text{Cd}$<br>$I_s = 68.86\text{Cd}$<br>$I_s/I_p = 14.14 \geq 5$ |
| 0°       | $I_p = 6.164\text{Cd}$<br>$I_s = 87.21\text{Cd}$<br>$I_s/I_p = 14.15 \geq 5$ | $I_p = 7.308\text{Cd}$<br>$I_s = 103.4\text{Cd}$<br>$I_s/I_p = 14.15 \geq 5$ | $I_p = 7.537\text{Cd}$<br>$I_s = 106.3\text{Cd}$<br>$I_s/I_p = 14.10 \geq 5$ | $I_p = 6.606\text{Cd}$<br>$I_s = 93.03\text{Cd}$<br>$I_s/I_p = 14.08 \geq 5$ | $I_p = 5.372\text{Cd}$<br>$I_s = 75.37\text{Cd}$<br>$I_s/I_p = 14.03 \geq 5$ |
| 5°       | $I_p = 6.307\text{Cd}$<br>$I_s = 89.28\text{Cd}$<br>$I_s/I_p = 14.16 \geq 5$ |                                                                              | $I_p = 7.467\text{Cd}$<br>$I_s = 105.3\text{Cd}$<br>$I_s/I_p = 14.10 \geq 5$ |                                                                              | $I_p = 5.272\text{Cd}$<br>$I_s = 73.90\text{Cd}$<br>$I_s/I_p = 14.02 \geq 5$ |

## **SAMPLE B**

| H→<br>V↓ | 10°                                                                          | 5°                                                                           | 0°                                                                           | 5°                                                                           | 10°                                                                          |
|----------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| 5°       | $I_p = 5.428\text{Cd}$<br>$I_s = 74.16\text{Cd}$<br>$I_s/I_p = 13.66 \geq 5$ |                                                                              | $I_p = 6.533\text{Cd}$<br>$I_s = 89.57\text{Cd}$<br>$I_s/I_p = 13.71 \geq 5$ |                                                                              | $I_p = 5.221\text{Cd}$<br>$I_s = 71.52\text{Cd}$<br>$I_s/I_p = 13.70 \geq 5$ |
| 0°       | $I_p = 6.158\text{Cd}$<br>$I_s = 84.04\text{Cd}$<br>$I_s/I_p = 13.65 \geq 5$ | $I_p = 7.512\text{Cd}$<br>$I_s = 103.1\text{Cd}$<br>$I_s/I_p = 13.72 \geq 5$ | $I_p = 7.922\text{Cd}$<br>$I_s = 108.7\text{Cd}$<br>$I_s/I_p = 13.72 \geq 5$ | $I_p = 7.108\text{Cd}$<br>$I_s = 97.27\text{Cd}$<br>$I_s/I_p = 13.68 \geq 5$ | $I_p = 5.573\text{Cd}$<br>$I_s = 76.26\text{Cd}$<br>$I_s/I_p = 13.68 \geq 5$ |
| 5°       | $I_p = 5.786\text{Cd}$<br>$I_s = 78.88\text{Cd}$<br>$I_s/I_p = 13.63 \geq 5$ |                                                                              | $I_p = 7.496\text{Cd}$<br>$I_s = 102.5\text{Cd}$<br>$I_s/I_p = 13.67 \geq 5$ |                                                                              | $I_p = 5.333\text{Cd}$<br>$I_s = 72.71\text{Cd}$<br>$I_s/I_p = 13.63 \geq 5$ |

The relation  $I_s/I_p$  is  $\geq 5$  in the required field.

$I_p$ : Intensity of the position lamp.

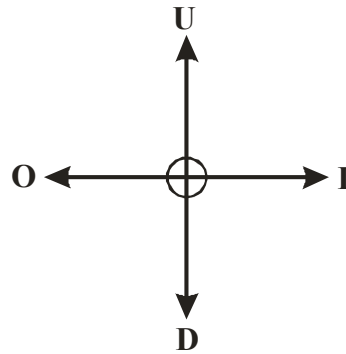
$I_s$ : Intensity of the position lamp + stop-lamp simultaneously.

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## ILLUMINATING SURFACE



|                    | Upper boundary<br>"U" (mm) | Down boundary<br>"D" (mm) | Inner boundary<br>"I" (mm) | Outer boundary<br>"O" (mm) |
|--------------------|----------------------------|---------------------------|----------------------------|----------------------------|
| Stop lamp          | 101                        | 101                       | 9                          | 9                          |
| Rear position lamp | 101                        | 101                       | 9                          | 9                          |

Test place: NVTC, Ningbo China  
Test date: 09/05/2022-10/05/2022

Joan Fonts Sala  
TEST ENGINEER