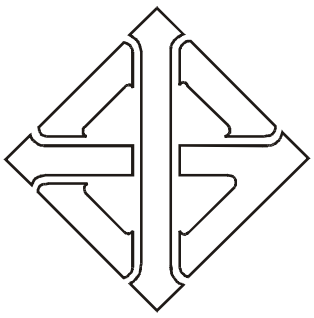

มาตรฐานผลิตภัณฑ์อุตสาหกรรม

THAI INDUSTRIAL STANDARD

มอก. 2291–2549

ECE Regulation No.77

00 series of amendments

โคมไฟจอดของยานยนต์

PARKING LAMPS FOR POWER–DRIVEN VEHICLES

สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม

กระทรวงอุตสาหกรรม

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มาตรฐานผลิตภัณฑ์อุตสาหกรรม
โคมไฟจอดของยานยนต์

มอก. 2291 – 2549

สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม
กระทรวงอุตสาหกรรม ถนนพระรามที่ 6 กรุงเทพฯ 10400
โทรศัพท์ 0 2202 3300

ประกาศในราชกิจจานุเบกษา ฉบับประกาศและงานทั่วไป เล่ม 124 ตอนพิเศษ 16ง
วันที่ 8 กุมภาพันธ์ พุทธศักราช 2550

โคมไฟส่องสว่างและโคมไฟสัญญาณเป็นอุปกรณ์จำเป็นสำหรับส่องสว่างและแสดงแสงสัญญาณสำหรับยานยนต์ที่มีเจตนาใช้งานบนทางสาธารณะ เพื่อให้เกิดความปลอดภัยจึงต้องมีมาตรฐานที่เหมาะสม และเพื่อเป็นการส่งเสริมอุตสาหกรรม จึงกำหนดมาตรฐานผลิตภัณฑ์อุตสาหกรรมโคมไฟจอดของยานยนต์ขึ้น

มาตรฐานผลิตภัณฑ์อุตสาหกรรมนี้กำหนดขึ้นโดยรับ Economic Commission for Europe (ECE) Regulation No. 77 UNIFORM PROVISIONS CONCERNING THE APPROVAL OF PARKING LAMPS FOR POWER-DRIVEN VEHICLES ดังต่อไปนี้

1. Regulation No. 77 Revision 1
   Incorporating allvalid up to:
   Supplement 1 - Supplement 5 to the original version of the Regulation
   Corrigendum 1 to the original version of the Regulation
2. Regulation No. 77 Revision 1 - Amendment 1
   Supplement 6 to the original version of the Regulation
3. Regulation No. 77 Revision 1 - Amendment 2
   Supplement 7 to the original version of the Regulation
4. Regulation No. 77 Revision 1 - Amendment 3
   Incorporating:
   Supplement 8 to the original version of the Regulation
   Corrigendum 1 to Supplement 8 to the original version of the Regulation

มาใช้ในระดับเหมือนกันทุกประการ (identical) เฉพาะสาระสำคัญทางวิชาการซึ่งแสดงถึงข้อกำหนดคุณลักษณะทั่วไป คุณลักษณะทางแสง วิธีการทดสอบ สีของแสง สำหรับข้อกำหนดด้านการรับรอง หรือการดำเนินการต่าง ๆ ที่เกี่ยวข้องให้เป็นไปตามพระราชบัญญัติมาตรฐานผลิตภัณฑ์อุตสาหกรรม โดยสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรมจะประกาศกำหนดหลักเกณฑ์การรับรองต่อไป

คณะกรรมการมาตรฐานผลิตภัณฑ์อุตสาหกรรมได้พิจารณามาตรฐานนี้แล้ว เห็นสมควรเสนอรัฐมนตรีประกาศตามมาตรา 15 แห่งพระราชบัญญัติมาตรฐานผลิตภัณฑ์อุตสาหกรรม พ.ศ. 2511

ประกาศกระทรวงอุตสาหกรรม

ฉบับที่ 3528 (พ.ศ. 2549)

ออกตามความในพระราชบัญญัติมาตรฐานผลิตภัณฑ์อุตสาหกรรม

พ.ศ. 2511

เรื่อง กำหนดมาตรฐานผลิตภัณฑ์อุตสาหกรรม

โคมไฟจอดของยานยนต์

อาศัยอำนาจตามความในมาตรา 15 แห่งพระราชบัญญัติมาตรฐานผลิตภัณฑ์อุตสาหกรรม พ.ศ. 2511 รัฐมนตรีว่าการกระทรวงอุตสาหกรรมออกประกาศกำหนดมาตรฐานผลิตภัณฑ์อุตสาหกรรมโคมไฟจอดของยานยนต์ มาตรฐานเลขที่ มอก. 2291-2549 ไว้ ดังมีรายละเอียดต่อท้ายประกาศนี้

ประกาศ ณ วันที่ 5 กรกฎาคม พ.ศ. 2549

สุริยะ จึงรุ่งเรืองกิจ

รัฐมนตรีว่าการกระทรวงอุตสาหกรรม

มอก. 2291–2549
ECE Regulation No. 77
00 series of amendments

มาตรฐานผลิตภัณฑ์อุตสาหกรรม

โคมไฟจอดของยานยนต์

ขอบข่าย

มาตรฐานผลิตภัณฑ์อุตสาหกรรมนี้ครอบคลุมข้อกำหนดคุณลักษณะทั่วไป คุณลักษณะทางแสง วิธีการทดสอบ สีของแสง ของโคมไฟจอดสำหรับยานยนต์มีต้นกำลังขับเคลื่อนในตัว (power-driven vehicle)

บทนิยาม

ความหมายของคำที่ใช้ในมาตรฐานผลิตภัณฑ์อุตสาหกรรมนี้ ให้เป็นไปตาม ECE Regulation No. 77

ข้อกำหนด

ข้อกำหนดคุณลักษณะทั่วไป คุณลักษณะทางแสง วิธีการทดสอบ สีของแสง ในมาตรฐานผลิตภัณฑ์อุตสาหกรรมนี้ ให้เป็นไปตาม ECE Regulation No. 77 ข้อ 6. ถึง ข้อ 9.

การทดสอบ

การทดสอบและการหาค่าต่าง ๆ ในมาตรฐานผลิตภัณฑ์อุตสาหกรรมนี้ ให้เป็นไปตาม ECE Regulation No. 77 ANNEX ที่เกี่ยวข้อง

UNIFORM PROVISIONS CONCERNING THE APPROVAL OF PARKING LAMPS FOR POWER-DRIVEN VEHICLES

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Annex 7 - Minimum requirements for sampling by an inspector

* * *

1. SCOPE

This Regulation applies to the approval of parking lamps which are provided for the equipment of power-driven vehicles.

2. DEFINITIONS

For the purposes of this Regulation:

2.1. "Parking lamp" means the lamp used to draw attention to the presence of a stationary vehicle;

2.2. The definitions given in Regulation No. 48 and its series of amendments in force at the time of application for type approval shall apply to this Regulation;

2.3. "Parking lamps of different types" are parking lamps which differ in such essential respects as:

2.3.1. the trade name or mark,

2.3.2. the characteristics of the optical system,

2.3.3. the category of filament lamp.

3. APPLICATION FOR APPROVAL

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

3.2. For each type of parking lamp the application shall be accompanied by:

3.2.1. A brief technical description stating, in particular, with the exception of lamps with non-replaceable light sources, the categories of filament lamps prescribed; each filament lamp category shall be one or other of those contained in Regulation No. 37;

3.2.2. Drawings (three copies), in sufficient detail to permit identification of the type of the parking lamp and showing geometrically the position in which the lamp is to be mounted on the vehicle, the axis of observation to be taken as the axis of reference in the tests (horizontal angle H = 0°, vertical angle V = 0°), and the point to be taken as the centre of reference in the said tests;

3.2.3. Two samples; if the parking lamps are such that they can be mounted only on one side of the vehicle, the two samples submitted may be identical and be suitable for mounting only on the right or only on the left side of the vehicle.

4. MARKINGS

4.1 Parking lamps submitted for approval shall clearly, legibly and indelibly bear:

4.1.1. The trade name or mark of the applicant,

4.1.2. A clearly legible and indelible marking indicating the category or categories of filament lamps prescribed; this is not valid for parking lamps with non-replaceable light sources;

4.1.3. In the case of parking lamps with non-replaceable light sources the marking of rated voltage and rated wattage.

4.2. Each lamp shall have a space of adequate dimensions for the approval mark and for the additional symbol prescribed in paragraph 5.5. below; this space shall be indicated in the drawings referred to in paragraph 3.2.2. above.

5. APPROVAL

5.1. If the two samples of a parking lamp type submitted in accordance with paragraph 3.2.3. above meet the requirements of this Regulation, approval shall be granted.

5.2. An approval number shall be assigned to each type approved. Its first two digits (at present 00 for the Regulation in its original form) shall indicate the series of amendments incorporating the most recent major technical amendments to the Regulation at the time of issue of the approval. The same Contracting Party may not assign the same number to another type of parking lamp.

5.3. Where approval is requested for a type of lighting and light-signalling device comprising a parking lamp and other lamps a single approval mark may be issued provided that the lamp in question complies with the requirements of this Regulation and that each of the other lamps forming part of the lighting and light-signalling device for which approval is requested, comply with the specific Regulation applying to them.

5.4. Notice of approval or refusal or extension or withdrawal of approval or production definitely discontinued shall be communicated to the Parties to the Agreement which apply this Regulation by means of a form conforming to the model in annex 1 to this Regulation.

5.5. Every parking lamp conforming to a type approved under this Regulation shall bear in the spaces referred to in paragraph 4.2. above, in addition to the marking prescribed in paragraph 4.1. an international approval mark consisting of:

5.5.1. A circle surrounding the letter "E" followed by the distinguishing number of the country which has granted approval; 1/

5.5.2. The number of this Regulation followed by the letter "R", a dash and the approval number;

5.5.3. When a lamp emits a light of amber colour towards the front and rear, the lamp must be marked with an arrow indicating its orientation, the arrow showing the front of the vehicle;

5.5.4. Where a single approval number is issued, as under paragraph 5.3., for a type of lighting and light-signalling device comprising a parking lamp, and other lamps, a single approval mark may be affixed, consisting of the additional symbols prescribed by the various Regulations under which approval has been granted.

5.5.5. On devices with reduced light distribution in conformity to paragraph 2.3 in annex 4 to this Regulation a vertical arrow starting from a horizontal segment and directed downwards.

5.6. The marking according to paragraphs 4.1.1. and 5.5. shall be clearly legible and be indelible even when the parking lamps are fitted on the vehicles.

5.7. The approval marking shall be clearly legible and indelible. It may be placed on an inner or outer part (transparent or not) of the device which cannot be separated from the transparent part of the device emitting the light. In any case the marking shall be visible when the device is fitted on the vehicle or when a movable part such as the hood or boot lid or a door is opened.

5.8. Annex 2 to this Regulation gives an example of an arrangement of the approval mark.

5.9.

6. GENERAL SPECIFICATIONS

6.1. Each sample shall conform to the specifications of paragraphs 7 and 9 of this Regulation.

6.2. Parking lamps shall be so designed and constructed that in normal

---

1/ 1 for Germany, 2 for France, 3 for Italy, 4 for the Netherlands, 5 for Sweden, 6 for Belgium, 7 for Hungary, 8 for the Czech Republic, 9 for Spain, 10 for Yugoslavia, 11 for the United Kingdom, 12 for Austria, 13 for Luxembourg, 14 for Switzerland, 15 (vacant), 16 for Norway, 17 for Finland, 18 for Denmark, 19 for Romania, 20 for Poland, 21 for Portugal, 22 for the Russian Federation, 23 for Greece, 24 for Ireland, 25 for Croatia, 26 for Slovenia, 27 for Slovakia, 28 for Belarus, 29 for Estonia, 30 (vacant), 31 for Bosnia and Herzegovina, 32 for Latvia, 33 (vacant), 34 for Bulgaria, 35-36 (vacant), 37 for Turkey, 38-39 (vacant), 40 for The former Yugoslav Republic of Macedonia, 41 (vacant), 42 for the European Community (Approvals are granted by its Member States using their respective ECE symbol), 43 for Japan, 44 (vacant), 45 for Australia, 46 for Ukraine and 47 for South Africa. Subsequent numbers shall be assigned to other countries in the chronological order in which they ratify or accede to the Agreement Concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these Prescriptions, and the numbers thus assigned shall be communicated by the Secretary-General of the United Nations to the Contracting Parties to the Agreement.

use, despite the vibrations to which they may be subjected, their satisfactory operation continues to be ensured and they retain the characteristics prescribed by this Regulation.

7. PHOTOMETRIC CHARACTERISTICS

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

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

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

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

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

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

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

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

7.2.4. Moreover,

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

7.2.4.2. the requirements of paragraph 2.2. of annex 4 on local variations of intensity shall be observed.

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

8. TEST PROCEDURE

All measurements shall be carried out with uncoloured standard filament lamps of the types prescribed for the device, adjusted to produce the normal luminous flux prescribed for those types of lamps.

8.1. All measurements on lamps equipped with non-replaceable light sources (filament lamps and other) shall be made at 6.75 V, 13.5 V or 28.0 V respectively.

In the case of light sources supplied by a special power supply, the above test voltages shall be applied to the input terminals of that power supply. The test laboratory may require from the manufacturer the special power supply needed to supply the light sources.

9. COLOUR OF LIGHT EMITTED

The colour of the light emitted inside the field of the light distribution grid defined at paragraph 2 of annex 4, measured by using a source of light with a colour temperature of 2,856 K, corresponding to illuminant A of the International Commission on Illumination (CIE), shall be within the limits of the co-ordinates prescribed for the colour in question in annex 5 to this Regulation. Outside this field no sharp variation of colour shall be observed.

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

10. REMARKS CONCERNING COLOURS

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

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

11.1. Every modification of the type of parking lamp shall be notified to the administrative department which approved the type of parking lamp. The department may then either:

11.1.1. Consider that the modifications made are unlikely to have an appreciable adverse effect and that in any case the parking lamp still complies with the requirements; or

11.1.2. Require a further test report from the technical service responsible for conducting the tests.

11.2. Confirmation or refusal of approval, specifying the modification shall be communicated by the procedure specified in paragraph 5.4. above.

11.3. The competent authority issuing the extension of approval shall assign a series number to each communication form drawn up for such an extension.

12. CONFORMITY OF PRODUCTION

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

12.1. Lamps approved under this Regulation shall be so manufactured as to conform to the type approved by meeting the requirements set forth in paragraphs 7 and 9 above.

12.2. The minimum requirements for conformity of production control procedures set forth in annex 6 to this Regulation shall be complied with.

12.3. The minimum requirements for sampling by an inspector set forth in annex 7 to this Regulation shall be complied with.

12.4. The authority which has granted type approval may at any time verify the conformity control methods applied in each production facility. The normal frequency of these verifications shall be once every two years.

13. PENALTIES FOR NON-CONFORMITY OF PRODUCTION

13.1. The approval granted in respect of a type of parking lamp pursuant to this Regulation may be withdrawn if the requirements set forth above are not complied with or if a parking lamp bearing the approval mark does not conform to the type approved.

13.2. If a Party to the Agreement which applies this Regulation withdraws an approval it has previously granted, it shall forthwith so notify the other Contracting Parties applying this Regulation by means of a communication form conforming to the model in annex 1 to this Regulation.

14. PRODUCTION DEFINITELY DISCONTINUED

If the holder of the approval completely ceases to manufacture a parking lamp under this Regulation, he shall so inform the authority which granted the approval. Upon receiving the relevant communication that authority shall inform thereof the other Parties to the Agreement applying this Regulation by means of a communication form conforming to the model in annex 1 to this Regulation.

15. NAMES AND ADDRESSES OF TECHNICAL SERVICES RESPONSIBLE FOR CONDUCTING APPROVAL TESTS AND OF ADMINISTRATIVE DEPARTMENTS

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

16. TRANSITIONAL PROVISIONS

16.1. As from the official date of entry into force of Supplement 5 to the Regulation, no Contracting Party applying this Regulation shall refuse to grant ECE approval under this Regulation as amended by Supplement 5.

16.2. As from 24 months after the date of entry into force, Contracting Parties applying this Regulation shall grant ECE approvals only if the type of parking lamp to be approved meets the requirements of this Regulation as amended by Supplement 5.

16.3. Contracting Parties applying this Regulation shall not refuse to grant extensions of approval to this Regulation in its original form and the subsequent supplements.

16.4. Contracting Parties applying this Regulation shall continue to grant approvals to those types of parking lamp which comply with the requirements of this Regulation in its original form and the subsequent supplements during the 12 months period which follows the date of entry into force of Supplement 5 to the Regulation.

16.5. ECE approvals granted under this Regulation earlier than 12 months after the date of entry into force and all extensions of approvals, including those to this Regulation in its original form and the subsequent supplements shall remain valid indefinitely. When the type of parking lamp approved to this Regulation in its original form and the subsequent supplements meets the requirements of this Regulation as amended by Supplement 5, the Contracting Party which granted the approval shall notify the other Contracting Parties applying this Regulation thereof.

16.6. No Contracting Party applying this Regulation shall refuse a type of parking lamp approved to Supplement 5 to this Regulation.

16.7. Until 36 months after the date of entry into force of Supplement 5 to the Regulation, no Contracting Party applying this Regulation shall refuse a type of parking lamp approved to the Regulation in its original form and the subsequent supplements.

16.8. Starting 36 months after the date of entry into force of Supplement 5 to the Regulation, Contracting Parties applying this Regulation may refuse the sale of a type of parking lamp which does not meet the requirements of Supplement 5 to this Regulation unless the parking lamp is intended as a replacement for fitting on vehicles in use.

16.9. Contracting Parties applying this Regulation shall continue to issue approvals for parking lamps on the basis of any previous Supplements to the Regulation, provided that parking lamps are intended as replacements for fitting to vehicles in use.

16.10. As from the official date of entry into force of Supplement 5 to the Regulation, no Contracting Party applying this Regulation shall prohibit the fitting on a vehicle of a parking lamp approved under this Regulation as amended by Supplement 5.

16.11. Contracting Parties applying this Regulation shall continue to allow the fitting on a vehicle of a parking lamp approved to this Regulation in its original form and the subsequent supplements during the 48 months period which follows the date of entry into force of Supplement 5 to the Regulation.

16.12. Upon the expiration of a period of 48 months after the date of entry into force of Supplement 5 to the Regulation, Contracting Parties applying this Regulation may prohibit the fitting of a parking lamp which does not meet the requirements of this Regulation as amended by Supplement 5 on a new vehicle for which national type or individual approval was granted more than 24

months after the date of entry into force of Supplement 5 to the Regulation.

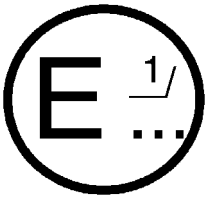
16.13. Upon the expiration of a period of 60 months after the date of entry into force, Contracting Parties applying this Regulation may prohibit the fitting of a parking lamp which does not meet the requirements of this Regulation as amended by Supplement 5 on a new vehicle first registered more than 60 months after the date of entry into force of Supplement 5 to the Regulation.

Annex 1

COMMUNICATION

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

issued by: Name of administration:
.....
.....
.....



concerning: 2/ APPROVAL GRANTED
APPROVAL EXTENDED
APPROVAL REFUSED
APPROVAL WITHDRAWN
PRODUCTION DEFINITELY DISCONTINUED

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

Approval No. ..... Extension No. .....

1. Designation of the type of parking lamp .....

2. Category of filament lamps 3/ .....

3. Colour of light emitted .....

4. Trade name or mark .....

5. Manufacturer's name and address .....

6. If applicable, name and address of manufacturer's representative .....

7. Submitted for approval on .....

8. Technical service responsible for conducting approval tests .....

9. Date of report issued by that service .....

10. Number of report issued by that service .....

1/ Name of administration.

2/ Strike out what does not apply.

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

11. Only for limited mounting height of equal to or less than 750 mm above the ground yes/no 2/

12. Approval granted/refused/extended/withdrawn 2/

13. Place .....

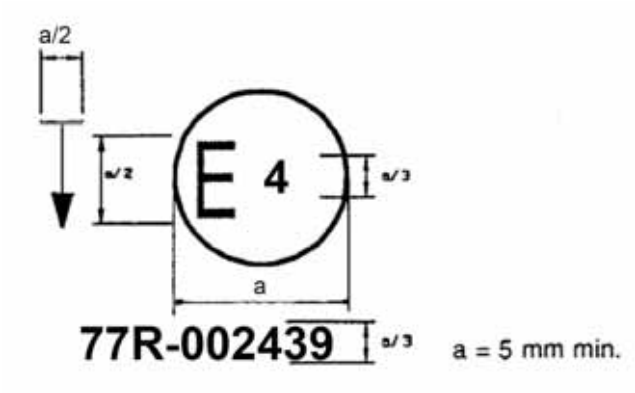
14. Date .....

15. Signature .....

16. The attached drawing No. ..... shows the geometrical position in which the device is to be mounted on the vehicle and the axis of reference and centre of reference of the device.

Annex 2

ARRANGEMENT OF APPROVAL MARK

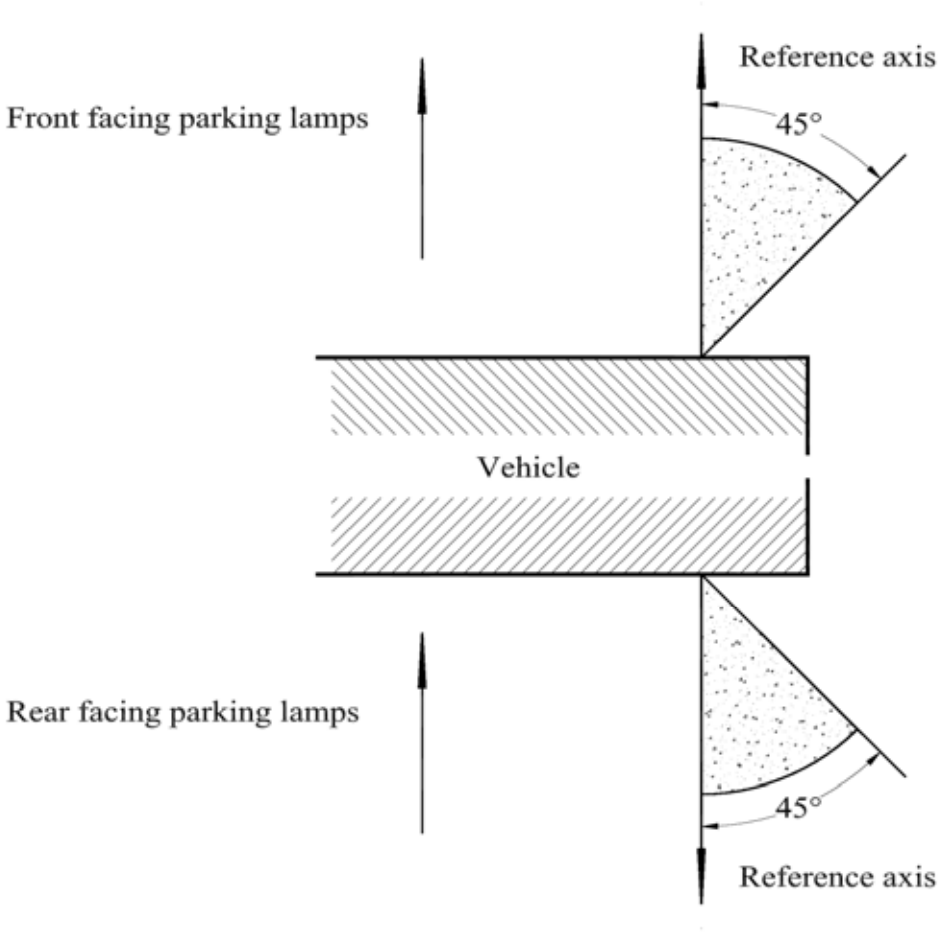


The lamp bearing the above approval mark has been approved in the Netherlands (E4) pursuant to Regulation No. 77 under the approval number 002439. The first two digits of the approval number indicate that the approval was granted according to the requirements of Regulation No. 77 in its original form. The vertical arrow starting from a horizontal segment and directed downwards indicates a permissible mounting height of equal to or less than 750 mm from the ground for this device.

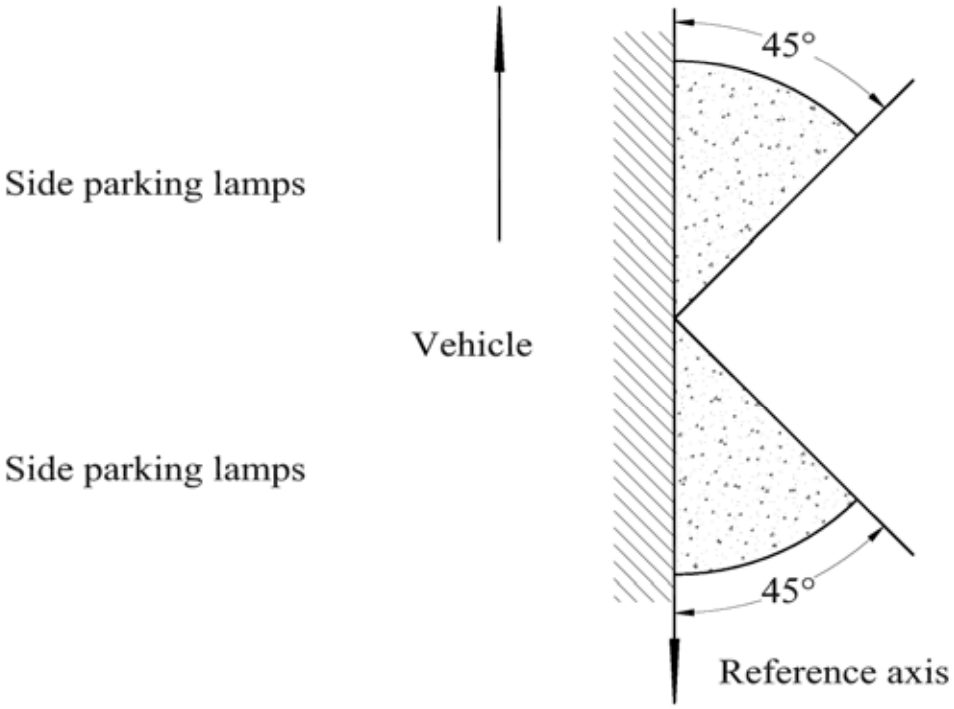
Annex 3

MINIMUM ANGLES REQUIRED FOR THE LIGHT DISTRIBUTION IN SPACE */

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



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


Side parking lamps
Vehicle
Side parking lamps
45°
45°
Reference axis

Annex 4

PHOTOMETRIC MEASUREMENTS

1. MEASUREMENT METHODS

1.1. During photometric measurements, stray reflections shall be prevented by appropriate masking.

1.2. Should the results of measurements be challenged, measurements shall be carried out in such a way as to meet the following requirements:

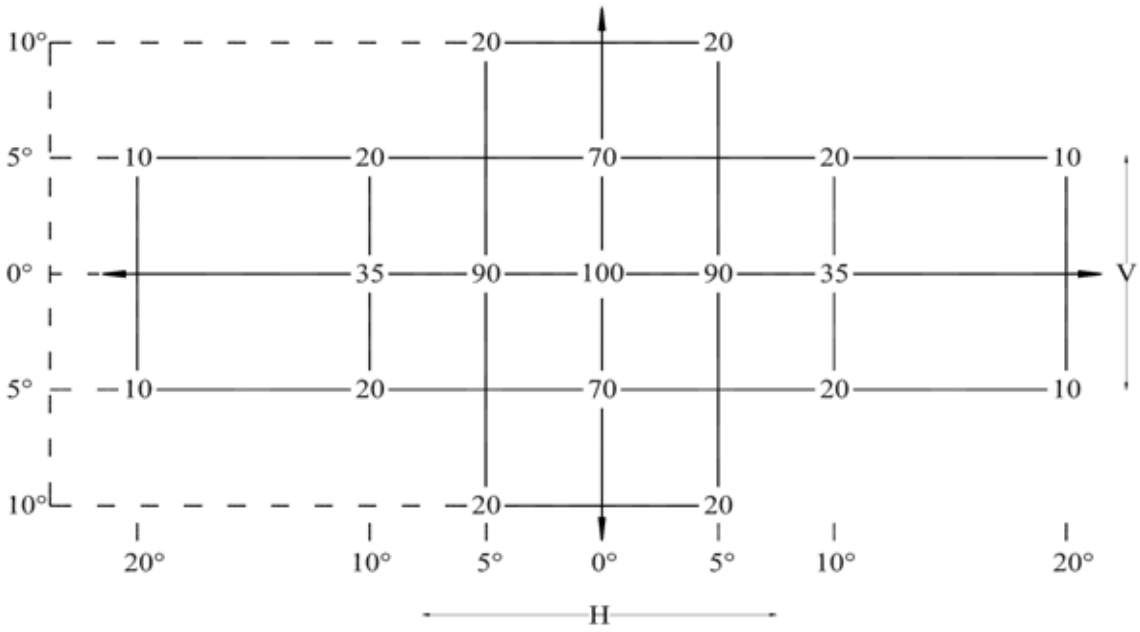
1.2.1. the distance of measurements shall be such that the law of the inverse of the square of the distance is applicable;

1.2.2. the measuring equipment shall be such that the angular aperture of the receiver viewed from the reference centre of the light is between 10' and 1°;

1.2.3. the intensity requirement for a particular direction of observation shall be deemed to be satisfied if that requirement is met in a direction deviating by not more than 15' from the direction of observation.

2. STANDARD LUMINOUS INTENSITY DISTRIBUTION TABLE

Left Right



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

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

2.2. Within the field of light distribution of paragraph 2., schematically shown as a grid, the light pattern should be substantially uniform in so far as the light intensity in each direction of a part of the field formed by the grid lines meets at least the lowest minimum percentage value being shown (available) on the grid lines surrounding the questioned direction.

2.3. However in the case where a device is intended to be installed 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.

3. Photometric measurement of lamps

The photometric performance shall be checked:

3.1. For non-replaceable light sources (filament lamps and other):

with the light sources present in the lamp, in accordance with paragraph 8.1. of this Regulation.

3.2. For replaceable filament lamps:

when equipped with mass production filament lamps at 6.75 V, 13.5 V or 28.0 V, the luminous intensity values produced shall lie between the maximum limit given in this Regulation and the minimum limit of this Regulation increased according to the permissible deviation of the luminous flux permitted for the type of filament lamp chosen, as stated in Regulation No. 37 for production of filament lamps; alternatively, a standard filament lamp may be used in turn, in each of the individual positions, operated at its reference flux, the individual measurements in each position being added together.

3.3. For any signalling lamp except those equipped with filament lamp(s), the luminous intensities, measured after one minute and after 30 minutes of operation, shall comply with the minimum and maximum requirements. The luminous intensity distribution after one minute of operation can be calculated from the luminous intensity distribution after 30 minutes of operation by applying at each test point the ratio of luminous intensities measured at HV after one minute and after 30 minutes of operation.

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Annex 5

COLOUR OF LIGHT EMITTED

TRICHROMATIC CO-ORDINATES

RED:	limit towards yellow:	$y \leq 0.335$
	limit towards purple:	$z \leq 0.008$
WHITE:	limit towards blue:	$x \geq 0.310$
	limit towards yellow:	$x \leq 0.500$
	limit towards green:	$y \leq 0.150 + 0.640\ x$
	limit towards green:	$y \leq 0.440$
	limit towards purple:	$y \geq 0.050 + 0.750\ x$
	limit towards red:	$y \geq 0.382$
AMBER:	limit towards yellow:	$y \leq 0.429$
	limit towards red:	$y \geq 0.398$
	limit towards white:	$z \leq 0.007$

For checking those colorimetric characteristics, a source of light at a colour temperature of 2,854 K corresponding to illuminant A of the International Commission on Illumination (CIE) shall be used. 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 paragraph 8.1. of this Regulation.

Annex 6

MINIMUM REQUIREMENTS FOR CONFORMITY OF PRODUCTION CONTROL PROCEDURES

1. GENERAL

1.1. The conformity requirements shall be considered satisfied from a mechanical and geometric standpoint, if the differences do not exceed inevitable manufacturing deviations within the requirements of this Regulation.

1.2. With respect to photometric performances, the conformity of mass-produced lamps shall not be contested if, when testing photometric performances of any lamp chosen at random and equipped with a standard filament lamp, or when the lamps are equipped with non-replaceable light sources (filament lamps or other), and when all measurements are made at 6.75 V, 13.5 V or 28.0 V respectively:

1.2.1. no measured value deviates unfavourably by more than 20 per cent from the values prescribed in this Regulation.

1.2.2. If, in the case of a lamp equipped with a replaceable light source and if results of the test described above do not meet the requirements, tests on lamps shall be repeated using another standard filament lamp.

1.3. The chromaticity coordinates shall be complied with when the lamp is equipped with a standard filament lamp, or for lamps equipped with non-replaceable light sources (filament lamps or other), when the colorimetric characteristics are verified with the light source present in the lamp.

2. MINIMUM REQUIREMENTS FOR VERIFICATION OF CONFORMITY BY THE MANUFACTURER

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

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

2.1. Nature of tests

Tests of conformity in this Regulation shall cover the photometric and colorimetric characteristics.

2.2. Methods used in tests

2.2.1. Tests shall generally be carried out in accordance with the methods set out in this Regulation.

2.2.2. In any test of conformity carried out by the manufacturer, equivalent methods may be used with the consent of the competent authority responsible for approval tests. The manufacturer is responsible for proving that the applied methods are equivalent to those laid down in this Regulation.

2.2.3. The application of paragraphs 2.2.1. and 2.2.2. requires regular

calibration of test apparatus and its correlation with measurements made by a competent authority.

2.2.4. In all cases the reference methods shall be those of this Regulation, particularly for the purpose of administrative verification and sampling.

2.3. Nature of sampling

Samples of lamps shall be selected at random from the production of a uniform batch. A uniform batch means a set of lamps of the same type, defined according to the production methods of the manufacturer.

The assessment shall in general cover series production from individual factories. However, a manufacturer may group together records concerning the same type from several factories, provided these operate under the same quality system and quality management.

2.4. Measured and recorded photometric characteristics

The sampled lamp shall be subjected to photometric measurements for the minimum values at the points listed in annex 4 and the chromaticity coordinates listed in annex 5, provided for in the Regulation.

2.5. Criteria governing acceptability

The manufacturer is responsible for carrying out a statistical study of the test results and for defining, in agreement with the competent authority, criteria governing the acceptability of his products in order to meet the specifications laid down for verification of conformity of products in paragraph 12.1. of this Regulation.

The criteria governing the acceptability shall be such that, with a confidence level of 95 per cent, the minimum probability of passing a spot check in accordance with annex 7 (first sampling) would be 0.95.

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Annex 7

MINIMUM REQUIREMENTS FOR SAMPLING BY AN INSPECTOR

1. GENERAL

1.1. The conformity requirements shall be considered satisfied from a mechanical and a geometric standpoint, in accordance with the requirements of this Regulation, if any, if the differences do not exceed inevitable manufacturing deviations.

1.2. With respect to photometric performance, the conformity of mass-produced lamps shall not be contested if, when testing photometric performances of any lamp chosen at random and equipped with a standard filament lamp, or when the lamps are equipped with non-replaceable light sources (filament lamps or other), and when all measurements are made at 6.75 V, 13.5 V or 28.0 V respectively:

1.2.1. no measured value deviates unfavourably by more than 20 per cent from the values prescribed in this Regulation.

1.2.2. If, in the case of a lamp equipped with a replaceable light source and if results of the test described above do not meet the requirements, tests on lamps shall be repeated using another standard filament lamp.

1.2.3. Lamps with apparent defects are disregarded.

1.3. The chromaticity coordinates shall be complied with when the lamp is equipped with a standard filament lamp, or for lamps equipped with non-replaceable light sources (filament lamps or other), when the colorimetric characteristics are verified with the light source present in the lamp.

2. FIRST SAMPLING

In the first sampling four lamps are selected at random. The first sample of two is marked A, the second sample of two is marked B.

2.1. The conformity is not contested

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

2.1.1.1. sample A

A1:	one lamp	0 per cent
	one lamp not more than	20 per cent
A2:	both lamps more than	0 per cent
	but not more than	20 per cent
	go to sample B	

2.1.1.2. sample B

B1:	both lamps	0 per cent

2.1.2. or, if the conditions of paragraph 1.2.2. for sample A are fulfilled.

2.2. The conformity is contested

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

2.2.1.1. sample A

A3:	one lamp not more than	20 per cent
	one lamp more than	20 per cent
	but not more than	30 per cent

2.2.1.2. sample B

B2:	in the case of A2	
	one lamp more than	0 per cent
	but not more than	20 per cent
	one lamp not more than	20 per cent
B3:	in the case of A2	
	one lamp	0 per cent
	one lamp more than	20 per cent
	but not more than	30 per cent

2.2.2. or, if the conditions of paragraph 1.2.2. for sample A are not fulfilled.

2.3. Approval withdrawn

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

2.3.1. sample A

A4:	one lamp not more than	20 per cent
	one lamp more than	30 per cent
A5:	both lamps more than	20 per cent

2.3.2. sample B

B4:	in the case of A2	
	one lamp more than	0 per cent
	but not more than	20 per cent
	one lamp more than	20 per cent
B5:	in the case of A2	
	both lamps more than	20 per cent
B6:	in the case of A2	
	one lamp	0 per cent
	one lamp more than	30 per cent

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

3. REPEATED SAMPLING

In the cases of A3, B2, B3 a repeated sampling, third sample C of

two lamps and fourth sample D of two lamps, selected from stock manufactured after alignment, is necessary within two months' time after the notification.

3.1. The conformity is not contested

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

3.1.1.1. sample C

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

3.1.1.2. sample D

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

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

3.2. The conformity is contested

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

3.2.1.1. sample D

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

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

3.3. Approval withdrawn

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

3.3.1. sample C

C3:	one lamp not more than	20 per cent
	one lamp more than	20 per cent
C4:	both lamps more than	20 per cent

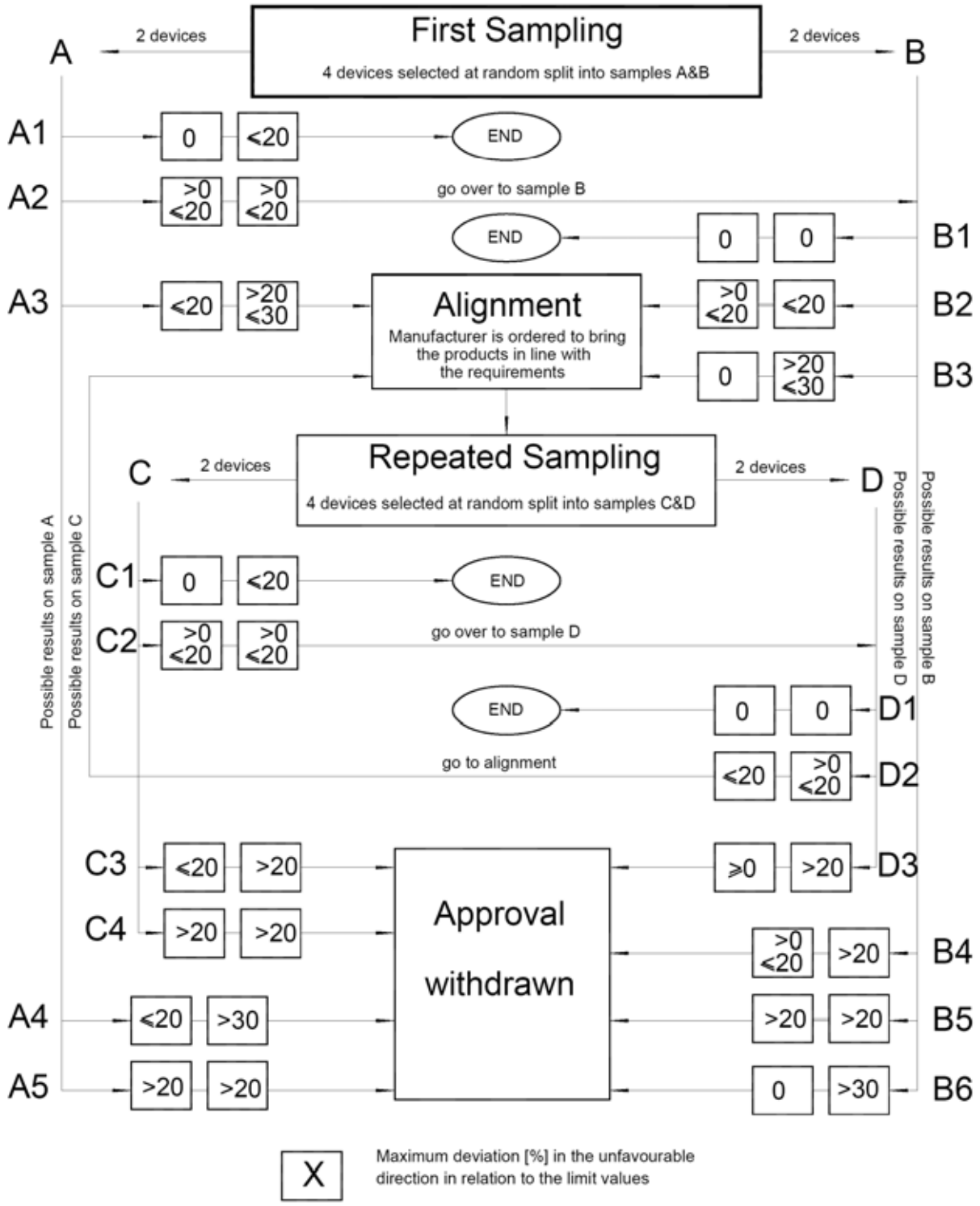
3.3.2. sample D

D3:	in the case of C2	
	one lamp 0 or more than	0 per cent

	one lamp more than	20 per cent

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

Figure 1


First Sampling
4 devices selected at random split into samples A&B
2 devices
2 devices
A
B
A1
A2
A3
A4
A5
B1
B2
B3
B4
B5
B6
0
<20
END
>0 <20
go over to sample B
Alignment
Manufacturer is ordered to bring the products in line with the requirements
>20 ≤30
Repeated Sampling
4 devices selected at random split into samples C&D
C
D
C1
C2
C3
C4
D1
D2
D3
go over to sample D
go to alignment
Approval withdrawn
≥0
>20
>30
Possible results on sample A
Possible results on sample C
Possible results on sample D
Possible results on sample B
X
Maximum deviation [%] in the unfavourable direction in relation to the limit values

Paragraph 3.1., amend to read:

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

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

Paragraph 3.2.2., amend to read:

"..... and showing geometrically the position(s) in which the lamp may be mounted on the vehicle; the axis of observation ....."

Paragraph 5.5.1., footnote 1/, amend to read:

"1/ ... 35 (vacant), 36 for Lithuania, ... 38 (vacant), 39 for Azerbaijan, ... and 48 for New Zealand. Subsequent numbers ...."

Annex 1, insert a new item 11., to read:

"11. Concise description:

Geometric conditions of installation and relating variations, if any: ....."

Items 11. to 15. (former), renumber as items 12. to 16.

Annex 4,

Add a new paragraph 1.3., to read:

"1.3. In the case where the device may be installed on the vehicle in more than one or in a field of different positions the photometric measurements shall be repeated for each position or for the extreme positions of the field of the reference axis specified by the manufacturer."

Paragraph 3.2., amend to read:

"3.2. For replaceable filament lamps:
when equipped with filament lamps at 6.75 V, 13.5 V or 28.0 V, the luminous intensity values produced shall be corrected. The correction factor is the ratio between the reference luminous flux and the mean value of the luminous flux found at the voltage applied (6.75 V, 13.5 V or 28.0 V). The actual luminous fluxes of each filament lamp used shall not deviate more than ± 5 per cent from the mean value. Alternatively a standard filament lamp may be used in turn, in each of the individual positions, operated at its reference flux, the individual measurements in each position being added together."

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Annex 5, amend to read:

"RED:	limit towards yellow:	$y \leq 0.335$
	limit towards purple:	$y \geq 0.980 - x$
WHITE:	....."	

Paragraph 2.3., amend to read:

"2.3. "Parking lamps of different types" means lamps which differ in such essential respects as:
- the trade name or mark,
- the characteristics of the optical system (levels of intensity, light distribution angles, category of filament lamp, light source module, etc.);

A change of the colour of the filament lamp or the colour of any filter does not constitute a change of type."

Paragraph 3.2.1., amend to read:

"3.2.1. a brief technical description stating, in particular, with the exception of lamps with non-replaceable light sources:
- the category or categories of filament lamp(s) prescribed; this filament lamp category shall be one of those contained in Regulation No. 37; and/or
- the light source module specific identification code."

Paragraph 4.1.2., amend to read:

"4.1.2. with the exception of lamps with non-replaceable light sources, a clearly legible and indelible marking indicating:
- the category or categories of filament lamp(s) prescribed; and/or
- the light source module specific identification code."

Paragraph 4.1.3., amend to read:

"4.1.3. in the case of lamps with non-replaceable light sources or light source module(s), the marking of the rated voltage and rated wattage."

Add new paragraphs 4.3., 4.3.1., 4.3.2. and 4.3.3., to read:

"4.3. In the case of lamps with light source modules(s), the light source module shall bear:

4.3.1. the trade name or mark of the applicant; this marking must be clearly legible and indelible;

4.3.2. the specific identification code of the module; this marking must be clearly legible and indelible.
This specific identification code shall comprise the starting letters "MD" for "MODULE" followed by the approval marking without the circle as prescribed in paragraph 5.5.1. below; this specific identification code shall be shown in the drawings mentioned in paragraph 3.2.2. above. The approval marking does not have to be the same as the one on the lamp in which the module is used, but both markings shall be from the same applicant.

4.3.3. the marking of the rated voltage and rated wattage."

Add new paragraphs 6.3., 6.3.1. and 6.3.2., to read:

"6.3. Light source module

6.3.1. The design of the light source module(s) shall be such that even in darkness the light source module(s) can be fitted in no other position, but the correct one.

6.3.2. The light source module(s) shall be tamperproof."

Insert a new paragraph 8.2., to read:

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

Annex 1, delete paragraphs 2. and 3. and renumber following paragraph accordingly.

Annex 1, item 9. (new numbering), amend to read:

"9. Concise description:
Colour of light emitted: red / white /amber 2/
Number and category(ies) of filament lamp(s): .....
Light source module: yes /no 2/
Light source module specific identification code: .....
Geometric conditions of installation and relating variations,
if any: ....."

Annex 2, insert a new example, to read:

"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."

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