No. 4789. AGREEMENT CONCERNING THE ADOPTION OF UNIFORM CONDITIONS OF APPROVAL AND RECIPROCAL RECOGNITION OF APPROVAL FOR MOTOR VEHICLE EQUIPMENT AND PARTS. DONE AT GENEVA, ON 20 MARCH 1958[1]

REGULATION No. 3[2] ANNEXED TO THE ABOVE-MENTIONED AGREEMENT

Official texts: English and French.

Registered ex officio *on 1 November 1963.*

REGULATION No. 3 : UNIFORM PROVISIONS FOR THE APPROVAL OF REFLEX REFLECTING DEVICES* FOR MOTOR VEHICLES**

1. *Application*

These provisions apply to reflex reflecting devices the fitting of which on motor vehicles and their trailers is prescribed or permitted by domestic regulations.

2. *Definitions*

2.1 The definitions of the technical terms used in this Regulation are given in annex I.[3]

2.2 A type of reflex reflecting device is defined by the models and descriptive literature submitted with the application for approval. Reflex reflecting devices can be considered as belonging to a type if they have one or more reflex reflecting optical units which are identical with those of the standard model of that type, and if their other parts differ from those of the standard model only in ways not affecting the properties to which these regulations apply.

2.3 Reflex reflecting devices are divided into three classes according to their photometric characteristics : Class I, Class II and Class III.***

3. *Approval*

3.1 Each Contracting Party to the Agreement applying this Regulation may grant approval in accordance therewith only to devices manufactured in its territory, or to devices manufactured in the territory of a country not applying the Regulation and not yet approved by another Contracting Party applying this Regulation.

* " Reflex reflecting devices " may also be called " reflex reflectors " in accordance with the terminology of the Convention on Road Traffic of 19 September 1949. [See United Nations, *Treaty Series*, Vol. 125, p. 3.]

** The vehicles referred to are those in categories A, B, C, D and E as defined in annexes 9 and 10 to the 1949 Convention on Road Traffic.

*** See paragraph 4.2 (*c*), p. 380 of this volume.

[1] United Nations, *Treaty Series*, Vol. 335, p. 211; Vol. 337, p. 446; Vol. 357, p. 395; Vol. 358, p. 366; Vol. 363, p. 408; Vol. 372, p. 370; Vol. 374, p. 387; Vol. 390, p. 369; Vol. 402, p. 324; Vol. 419, p. 359; Vol. 423, p. 325; Vol. 450, p. 450; Vol. 454, p. 571; Vol. 462, p. 354; Vol. 469, p. 435, and Vol. 472.

[2] In accordance with paragraph 5 of article 1 of the Agreement, Regulation No. 3 came into force on 1 November 1963 in respect of France and the United Kingdom of Great Britain and Northern Ireland.

[3] See p. 382 of this volume.

3.2 The application for approval shall be submitted by the holder of the trade name or mark, or if necessary by his duly accredited representative, and shall be accompanied by :

(*a*) (i) drawings (three copies) in sufficient detail to permit identification of the type, showing geometrically the position in which the reflex reflecting device is to be fitted to the vehicle; and

(ii) brief technical specifications of the materials of which the reflex reflecting optical unit is made;

(*b*) Samples of the reflex reflecting device in red; the number of samples to be submitted is specified in annex V;[1]

(*c*) If necessary, two samples in amber and/or clear material for simultaneous or subsequent extension of the approval to amber and/or clear devices.

3.3 If the samples submitted satisfy the provisions of this Regulation, approval may be granted for the type submitted. The approval shall be granted to the applicant, who shall be responsible for the conformity of the manufactured article.

3.4 When a reflex reflecting device has been approved after tests on a red sample it may, by extension, also be approved as an amber and/or clear reflex reflecting device if two amber and/or clear samples are submitted and satisfy the colorimetric requirements (annex VII),[2] in which case the other tests shall not be required. The same approval number shall apply.

3.5 As soon as approval or an extension of approval has been granted, the competent authority shall notify the competent authorities of all the other countries applying this Regulation, by means of a form of which the model is shown in annex II.[3] The form shall be accompanied by a drawing, if possible actual size, supplied by the person to whom approval has been granted, in a format not larger than A4 (210 × 297 mm).

4. *Markings*

4.1 Reflex reflecting devices submitted for approval must bear :

(*a*) the trade name or mark registered in the country where approval is requested;

(*b*) the word or words " TOP " inscribed horizontally on the highest part of the illuminating surface, if such an indication is necessary to determine without ambiguity the position recommended by the manufacturer.

In addition, a space of sufficient size for the approval mark should be provided and shown in the drawings submitted with the application.

4.2 Every reflex reflecting device conforming to a type approved by the competent authority of a country in which this Regulation is applied shall, in addition

[1] See p. 392 of this volume.
[2] See p. 398 of this volume.
[3] See p. 388 of this volume.

to the markings referred to in paragraph 4.1 above, bear an international approval mark in accordance with annex III,[1] consisting of :

(*a*) a circle surrounding the letter " E " followed by a number identifying the country which has granted approval (annex IV);[2]

(*b*) an approval number;

(*c*) a Roman numeral : I, II or III, showing the class in which the reflex reflecting device was placed when approved; the class of reflex reflecting device to be used by vehicles of each category shall be determined by domestic regulations, it being understood, however, that Class III devices shall be reserved for trailers.

4.3 An approval mark allocated in accordance with paragraph 4.2 above to a particular type of reflex reflecting device shall not be allocated to any other type, except in the case of extension of the approval to amber and/or to clear reflecting devices.

4.4 The markings must be placed on the illuminating surface, or one of the illuminating surfaces, of the reflex reflecting device and must be visible from the outside when the device is fitted on the vehicle. The markings must be clearly legible and indelible.

5. *Conformity in manufacture*

5.1 Every device bearing an official approval mark must conform to the type approved under that mark. The competent authority issuing the approval mark shall retain two samples which, together with the certificate of approval, shall serve to establish whether reflex reflecting devices put on the market with the approval mark satisfy this condition.

5.2 In accordance with article 5, paragraph 2, of the Agreement, as soon as approval of a particular type of reflex reflecting device is withdrawn, the competent authority shall notify the competent authorities of all the countries applying this Regulation, by means of a form of which the model is shown in annex II,

5.3 The withdrawal of approval shall entail, within a period fixed by the decision, at the least prohibition of the use of the approval marks in question.

6. *General specifications*

6.1 Reflex reflecting devices must be so constructed that they function satisfactorily and will continue to do so in normal use. In addition, they must not have any defect in design or manufacture which is detrimental to their efficient operation or maintenance in good condition.

6.2 The components of reflex reflecting devices must not be capable of being easily dismantled.

6.3 The optical units of reflex reflecting devices may not be replaceable.

[1] See p. 390 of this volume.
[2] See p. 392 of this volume.

6.4 The outer surface of reflex reflecting devices must be easy to clean. Hence it must not be a rough surface. It may, however, have protuberances, provided cleaning remains easy.

7. *Special specifications (tests)*

7.1 Reflex reflecting devices must also satisfy the conditions as to dimensions and shape, and the colorimetric, photometric, physical and mechanical requirements set forth in annexes VI, VII, VIII, IX, X, XI, XII and XIII.[1] The tests shall be made in whichever of the laboratories listed in annex IV the competent authority may choose. The results of the tests shall be communicated to the applicant for, or holder of, approval. The test procedures are described in annex V.

7.2 Depending on the nature of the materials of which the reflex reflecting devices and, in particular, their optical units, are made, the competent authorities may authorize the laboratories to omit certain unnecessary tests, subject to the express reservation that such omission must be mentioned under " Remarks " on the form notifying approval.

ANNEX I

TERMINOLOGY RELATING TO REFLEX REFLECTING DEVICES*
(see also appendices 1 and 2 to this annex)

I.1 *Reflex reflection*

Reflection in which light is reflected in directions close to the direction from which it came. This property is maintained over wide variations of the illumination angle.

I.2 *Reflex reflecting optical unit*

Combination of optical components producing reflex reflection.

I.3 *Reflex reflecting device***

Assembly ready for use and comprising one or more reflex reflecting optical units.

I.4 *Illuminating surface*

The illuminating surface of a reflex reflecting device is the total visible surface of the reflex reflecting optical units which appears continuous at the normal observation distances.

I.5 *Axis of reference*

An axis to be defined by the manufacturer of the reflex reflecting device, which serves as reference line for the illumination angles in photometric measurements and in practical use. The axis of reference usually corresponds to the axis of symmetry, if any, of the illuminating surface.

I.6 *Centre of reference*

Orthogonal projection of the centre of gravity of the illuminating surface on the plane nearest to the observer which is tangential to that surface and perpendicular to the axis of reference of the reflex reflecting device.

* The definitions of technical terms are those adopted by the International Commission on Illumination (ICI).

** Also called " reflex reflector ".

[1] The initial draft Regulations No. 3 contained thirteen annexes. In its revised version as approved by the Inland Transport Committee of the Economic Commission for Europe and communicated to the Secretary-General of the United Nations by the Governments of France and the United Kingdom of Great Britain and Northern Ireland, annex XIII was deleted but the corresponding deletion of the reference to it in paragraph 7.1 of the Regulations was neglected through an oversight. For annexes VI to XII, see pp. 394 to 406 of this volume.

I.7 *Angle of divergence*

Angle between the straight lines connecting the centre of reference to the centre of the receiver and to the centre of the source of illumination.

I.8 *Illumination angle*

Angle between the axis of reference and the straight line connecting the centre of reference to the centre of the source of illumination.

I.9 *Angle of rotation*

Angle through which the reflex reflecting device is rotated about its axis of reference starting from one given position.

I.10 *Angular diameter of the reflex reflecting device*

Angle subtended by the greatest dimension of the visible area of the illuminating surface, either at the centre of the source of illumination or at the centre of the receiver.

I.11 *Illumination of the reflex reflecting device*

Abbreviated expression used conventionally to designate the illumination measured in a plane perpendicular to the incident rays and passing through the centre of reference.

I.12 *Coefficient of luminous intensity (CIL)*

Quotient of the luminous intensity reflected in the direction considered, divided by the illumination of the reflex reflecting device for given angles of illumination, divergence and rotation.

ANNEX I—APPENDIX 1

REFLEX REFLECTING DEVICE

Symbols and units

A = Area of the illuminating surface of the reflex reflecting device (cm^2 or square inches)
C = Centre of reference
NC = Axis of reference
Rr = Receiver, observer or measuring device
Cr = Centre of receiver
Ør = Diameter of receiver Rr if circular (cm or inches)
Se = Source of illumination
Cs = Centre of source of illumination
Øs = Diameter of source of illumination (cm or inches)
De = Distance from centre Cs to centre C (m or feet)
D'e = Distance from centre Cr to centre C (m or feet)

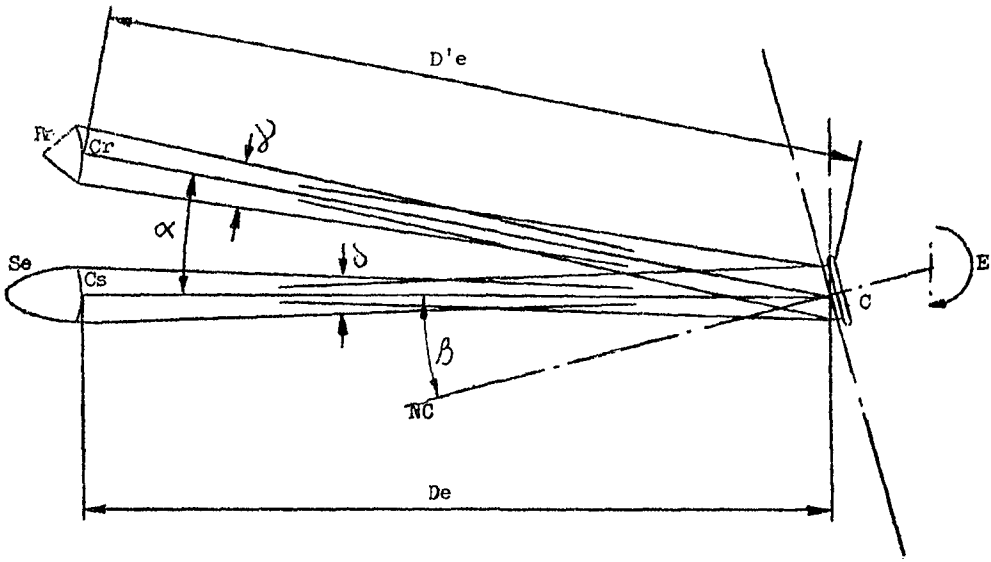
Note: De and D'e are generally very nearly the same and under normal conditions of observation it may be assumed that De = D'e.

D = Observation distance from and beyond which the illuminating surface appears to be continuous
α = Angle of divergence
β = Illumination angle. With respect to the line CsC which is always considered to be horizontal, this angle is prefixed with signs − (left), + (right), + (up) or − (down), according to the position of the source Se in relation to the axis NC, as seen when looking towards the reflex reflecting device. For any direction defined by two angles, vertical and horizontal, the vertical angle is always given first.
δ = Angular diameter of the measuring device Rr as seen from point C
S = Angular diameter of the source Se as seen from point C
ϵ = Angle of rotation. This angle is positive when the rotation is clockwise as seen when looking towards the illuminating surface. If the reflex reflecting device is marked " TOP ", the position thus indicated is taken as the origin.
E = Illumination of the reflex reflecting device (lux or ft.cd)
CIL = Coefficient of luminous intensity (millicandelas/lux or cd/ft.cd) Angles are expressed in degrees and minutes.

ANNEX I — APPENDIX 2

REFLEX REFLECTORS

Symbols



Elevation

ANNEX II

COMMUNICATION CONCERNING THE APPROVAL OF A TYPE OF REFLEX REFLECTING DEVICE

Name of
Competent authority

Place and date .....

1 Trade name or mark
2 Identification of type
3 Manufacturer's name
4 Address
5 Name of representative, if any
6 Address
7 Submitted for approval on
8 Test laboratory
9 Date and number of laboratory report
10 Date of approval
11 Date of extension of approval { amber / clear

12 Date of sample or samples
13 Test laboratory
14 Dates and numbers of laboratory reports
15 Date of withdrawal

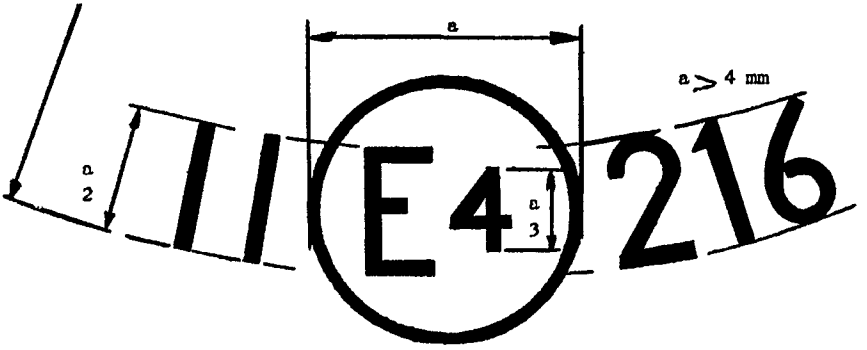
16 Remarks

Signed .....

Enclosure:
(Drawing of reflex reflector, format A4 (210 × 297 mm))

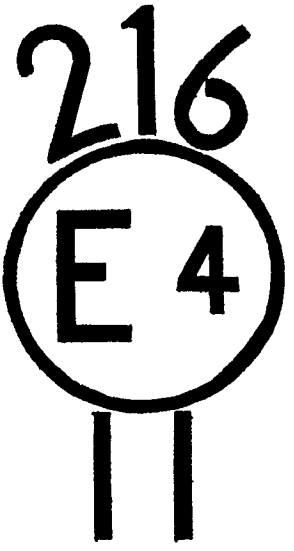
ANNEX III

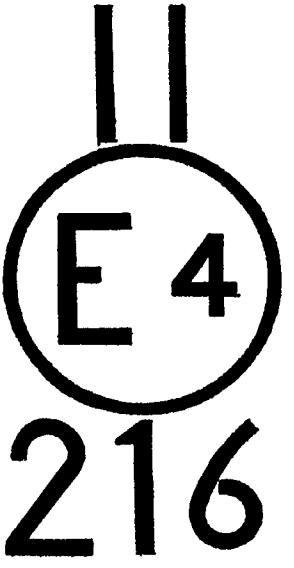
APPROVAL MARKS



The approval number must be placed close to the circle surrounding the letter " E ", but may be in any position with respect to it. The figures of the approval number must face the same way as the " E ". The Roman numerals indicating the class must be diametrically opposite to the approval number. The competent authorities will avoid using approval numbers 1, 11 and 111, which might be confused with the class symbols I, II and III.

Note: These sketches show various possible arrangements and are given as examples only.





ANNEX IV

APPROVAL SIGNS AND AUTHORIZED LABORATORIES OF SIGNATORY COUNTRIES*

Country	*Sign***	*Approved laboratory*
Federal Republic of Germany .	E 1	(*a*) Lichttechnisches Institut der Technischen Hochschule, Karlsruhe
		(*b*) Physikalisch-Technische Bundesanstalt, Aussenstelle, Berlin-Charlottenburg
France	E 2	Laboratoire National d'Essais 1 rue Gaston Boissier, Paris 15e
Italy	E 3	Ministero dei Trasporti, Ispettorato Generale della Motorizzazione Civile e dei Trasporti in Concessione, Centro Sperimentale Fotometria, Milano, via Colleoni, 20
Netherlands	E 4	Laboratoires K.E.M.A. Utrechtseweg 310, Arnhem
Sweden	E 5	Statens Provningsanstalt, Drottning Kristinas väg, Stockholm
Belgium	E 6	Laboratoire Central d'Électricité 2 rue de la Vanne, Bruxelles 5
Hungary	E 7	Központi Elektrotechnikai és Fónytechnikai Allomas. Budapest, VI Eötvös u. 11/a (4 em.)
Czechoslovakia	E 8	Electro-Technical Testing Institute, Prag 8 — Troja, U Pomologie No. 129
Spain	E 9	

* When accepting this Regulation, each country will state the name and address of the official laboratory responsible for tests.

** The signs E 10, E 11 *et seq.* will be allocated to other countries in the order in which they become Parties to the Agreement.

ANNEX V

TEST PROCEDURE

V.1 The applicant shall submit 10 samples for approval.

V.2 After verification of the general specifications (paragraph 6 of the Regulation) and the specifications of shape and dimensions (annex VI), the 10 samples shall be examined as to their colorimetric characteristics (annex VII) and CIL (annex VIII) for an angle of divergence of 20′ and an illumination angle V = H = 0° or if necessary, in the position defined in paragraphs VIII.4 and VIII.4.1. The two reflex reflecting devices giving the minimum and maximum values shall then be fully tested as shown in paragraph VIII.3. These 2 samples shall be kept by the laboratories as provided in paragraph 5.1 of the Regulation for any further checks which may be found necessary. The other 8 samples shall be divided into 4 groups of 2 :

1st Group: The 2 samples shall be subjected successively to the water penetration test (paragraph IX.1) and then, if this test is satisfactory, to the tests for resistance to fuels and lubricants (paragraphs IX.3 and IX.4).

2nd Group: The 2 samples shall, if necessary, be subjected to the corrosion test (paragraph IX.2), and then to the resistance test for the reverse side of the reflex reflecting device (paragraph IX.5). The same 2 samples shall then be subjected to the heat test (annex XI).

3rd Group: The 2 samples shall be subjected to the test for stability of the optical properties with ageing (annex X).

4th Group: The 2 samples shall be subjected to the colour-fastness test (annex XII).

V.3 After undergoing the tests referred to in paragraph V.2 above, the reflex reflecting devices in each group must have

3.1 a colour which satisfies the conditions laid down in annex VII. This shall be verified by a qualitative method and, in case of doubt, confirmed by a quantitative method.

3.2 a CIL which satisfies the conditions laid down in annex VIII and after the test reaches at least 60% of the value previously obtained with the same sample. The test shall be made only with an angle of divergence of 20′ and an illumination angle of V = H = 0° or, if necessary, in the position specified in paragraphs VIII.4 and VIII.4.1.

ANNEX VI

SPECIFICATIONS OF SHAPE AND DIMENSIONS

VI.1 Shape and dimensions of reflex reflecting devices in Classes I and II

1.1 The illuminating surfaces of reflex reflecting devices in classes I and II must be inscribable within a circle 200 mm in diameter.

1.2 The shape of the illuminating surfaces must be simple, and not easily confused at normal observation distances, with a letter, a figure or a triangle.

1.3 The preceding paragraph notwithstanding, a shape resembling the simply formed letters or figures O, I, U or 8 is permissible.

VI.2 Shape and dimensions of reflex reflecting devices in Class III (see appendix to this annex)

2.1 The illuminating surfaces of reflex reflecting devices in Class III must have the shape of an equilateral triangle. If the word " TOP " is inscribed in one angle, this means that that angle must form the apex of the triangle.

2.2 The illuminating surface may or may not have at its centre a triangular, non-reflecting area, the sides of which are parallel to those of the outer triangle.

2.3 The illuminating surface may or may not be continuous. In any case, the shortest distance between two adjacent reflex reflecting optical units must not exceed 15 mm.

2.4 The illuminating surface of a reflex reflecting device shall be considered to be continuous if the edges of the illuminating surfaces of adjacent separate optical units are parallel and if the said optical units are evenly distributed over the whole solid surface of the triangle.

2.5 If the illuminated area is not continuous, the number of separate reflex reflecting optical units shall not be less than four on each side of the triangle including the corner units.

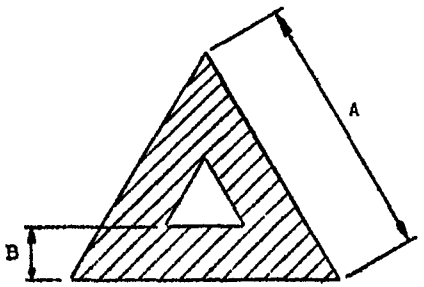
2.5.1 The separate reflex reflecting optical units shall not be replaceable unless they consist of approved reflex reflecting devices in Class I or II.

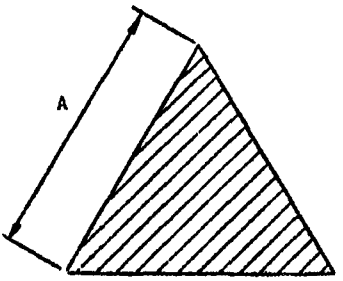
2.6 The outside edges of the illuminating surfaces of triangular reflex reflecting devices in Class III shall be between 150 and 200 mm long. In the case of hollow type devices, the minimum width of the sides, measured at right angles to them, shall be at least 20% of the effective length between the extremities of the illuminating surface.

VI.3 The above specifications shall be checked by inspection.

ANNEX VI — APPENDIX

REFLEX REFLECTORS FOR TRAILERS—CLASS III

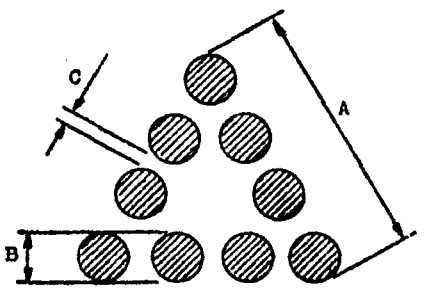


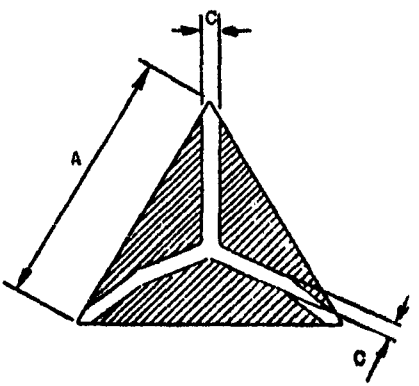


$150 \text{ mm} \leqslant A \leqslant 200 \text{ mm}$

$B \geqslant \frac{A}{5}$

$C \leqslant 15 \text{ mm}$





Note: These sketches are only for illustration purposes.

ANNEX VII

COLORIMETRIC SPECIFICATIONS

VII.1 These specifications shall apply only to clear, red or amber reflex reflecting devices.

1.1 Reflex reflecting devices may consist of a combined reflex reflecting optical unit and filter, which must be so designed that they cannot be separated under normal conditions of use.

1.2 The colouring of reflex reflecting optical units and filters by means of paint or varnish is not permitted.

VII.2 When the reflex reflecting device is illuminated by ICI standard illuminant A, with an angle of divergence of 1/3° and an illumination angle V = H = 0°, or, if this produces a colourless surface reflection, an angle V = ± 5°, H = 0°, the trichromatic co-ordinates of the reflected luminous flux must be within the following limits :

Red :	limit towards yellow	$y \leqslant 0.335$
	limit towards purple	$z \leqslant 0.008$
Amber :	limit towards yellow	$y \leqslant 0.429$
	limit towards red	$y \geqslant 0.398$
	limit towards white	$z \leqslant 0.007$

2.1 In the case of red and amber, compliance with the colorimetric specifications shall be verified by a visual comparison test.

2.2 If any doubt remains after this test, compliance with the colorimetric specifications shall be verified by determining the trichromatic co-ordinates of the most doubtful sample.

VII.3 Clear reflex reflecting devices must not produce a selective reflection, that is to say, the trichromatic co-ordinates " x " and " y " of the standard illuminant " A " used to illuminate the reflex reflecting device must not undergo a change of more than 0.01 after reflection by the reflex reflecting device.

3.1 This shall be verified by the visual comparison test indicated above, the control field being illuminated by a light source of which the trichromatic co-ordinates differ by 0.01 from that of standard illuminant A.

3.2 In case of doubt, the trichromatic co-ordinates for the most selective sample shall be determined.

ANNEX VIII

PHOTOMETRIC SPECIFICATIONS

VIII.1 When applying for approval, the applicant shall specify the axis of reference. This corresponds to the illumination angle V = H = 0° in the table of coefficients of luminous intensity (CIL).

VIII.2 For photometric measurements, only the illuminating surface contained within a circle of 120 mm diameter for class I and 85 mm diameter for class II shall be considered, and the illuminating surfaces themselves shall be limited to 100 cm^2 for class I and 50 cm^2 for class II, though the surfaces of the reflex reflecting optical units need not necessarily attain these areas. The manufacturer shall specify the perimeter of the area to be used. In the case of class III, the whole of the illuminating surfaces shall be considered without limitation as to size.

VIII.3 The CIL values for red reflex reflecting devices must be *at least equal* to those in the table below, expressed in millicandelas per lux, for the angles of divergence and illumination shown :*

* Provisional figures subject to increase.

Class	*Angle of divergence* α	*Illumination angles* β			
		Vertical V Horizontal H	0° 0°	$+$ *and* $-$ 10° 0°	$+$ *and* $-$ 5° $+$ *and* $-$ 20°
I	20′		100	50	50
	1°30′		5	2.5	2.5
II	20′		50	25	25
	1°30′		2.5	1.25	1.25
III	20′		150	75	75
	1°30′		7.5	3.75	3.75

CIL values lower than those shown in the last two columns of the above table are not permissible within the solid angle having the reference centre as its apex and bounded by the planes intersecting along the following lines :

(V = + and − 10°, H = 0°) (V = + and − 5°, H = + and − 20°)

VIII.4 When the CIL of a reflex reflecting device is measured for an angle β of V = H = 0°, it shall be ascertained whether any mirror effect is produced by slightly turning the device. If there is any such effect, a reading shall be taken with an angle β of V = ± 5°, H = 0°. The position adopted shall be that corresponding to the minimum CIL for one of these positions.

4.1 With an illumination angle β of V = H = 0°, or the angle specified in paragraph VIII.4 above, and an angle of divergence of 20′, reflex reflecting devices which are not marked " TOP " shall be rotated about their axes of reference to the position of minimum CIL, which must conform to the value specified in paragraph VIII.3. When the CIL is measured for the other angles of illumination and divergence, the reflex reflecting device shall be placed in the position corresponding to this value of ϵ. If the specified values are not attained, the device may be rotated about its axis of reference ± 5° from that position.

4.2 With an illumination angle β of V = H = 0°, or the angle specified in paragraph VIII.4 above, and an angle of divergence of 20′, reflex reflecting devices marked " TOP " shall be rotated about their axes ± 5°. The CIL must not fall below the prescribed value in any position assumed by the device during this rotation.

4.3 If for the direction V = H = 0°, and for ϵ = 0° the CIL exceeds the specified value by 50% or more, all measurements for all angles of illumination and divergence shall be made for ϵ = 0°.

VIII.5 For making the necessary measurements, the method recommended by ICI for the photometry of reflex reflecting devices shall be adopted.

ANNEX IX

RESISTANCE TO EXTERNAL AGENTS

IX.1 *Resistance to penetration of water*

Reflex reflecting devices, whether part of a lamp or not, shall be stripped of all removable parts and immersed for 10 minutes in water at a temperature of 25° ± 5° C, the highest point of the upper part of the illuminating surface being 20 mm below the surface of the water. This test shall be repeated after turning the reflex reflecting device through 180°, so that the illuminating surface is at the bottom and the reverse side covered by about 20 mm of water.

1.1 No water must penetrate to the reflecting surface of the reflex reflecting optical unit. If inspection clearly reveals the presence of water, the device shall not be considered to have passed the test.

1.2 If inspection does not reveal the presence of water, or in case of doubt, the CIL shall be measured by the method described in paragraph V.3.2, after lightly shaking the reflex reflecting device to remove excess water from the outside.

IX.2 *Resistance to corrosion*

Reflex reflecting devices must be so designed that they retain the prescribed photometric and colorimetric characteristics despite the humidity and corrosive influences to which they are normally exposed. The resistance of the front surface to tarnishing and that of the protecting back surface to deterioration shall be checked, particularly when an essential metal component seems liable to be attacked.

The reflex reflecting device, or the lamp if the device is combined with a light, shall be stripped of all removable parts and subjected to the action of a saline mist for a period of 50 hours, comprising 2 periods of exposure of 24 hours each, separated by an interval of 2 hours during which the sample is allowed to dry.

The saline mist shall be produced by atomising, at a temperature of 35° ± 2°C, a saline solution obtained by dissolving 20 ± 2 parts by weight of sodium chloride in 80 parts of distilled water containing not more than 0.02% of impurities. Immediately after completion of the test, the sample must not show signs of excessive corrosion liable to impair the efficiency of the device.

IX.3 *Resistance to fuels*

The outer surface of the reflex reflecting device and, in particular, of the illuminating surface, shall be lightly wiped with a cotton cloth soaked in a mixture of petrol and benzol (proportion 90 : 10). After about 5 minutes, the surface shall be inspected. It must not show any visible change.

IX.4 *Resistance to lubricating oils*

The outer surface of the reflex reflecting device and, in particular, the illuminating surface, shall be lightly wiped with a cotton cloth soaked in a detergent lubricating oil. After about 5 minutes, the surface shall be cleaned. The CIL shall then be measured (paragraph V.3.2).

IX.5 *Resistance of the accessible reverse side of mirror-backed reflex reflecting devices*

The reverse side of the reflex reflecting device shall be brushed with a hard nylon brush and then covered or thoroughly wetted with a mixture of petrol and benzol (proportion 90 : 10) for one minute. The mixture shall then be removed and the device allowed to dry.

As soon as evaporation is completed, an abrasion test shall be made by brushing the reverse side with the same nylon brush as before.

The CIL shall then be measured (paragraph V.3.2) after the whole surface of the mirror-backed reverse side has been covered with Indian ink.

ANNEX X

STABILITY OF THE OPTICAL PROPERTIES* OF REFLEX REFLECTING DEVICES WITH AGEING

X.1 The authority which granted approval shall have the right to check the stability of the optical properties of a type of reflex reflecting device in service as ageing takes place.

* Despite the importance of tests to check the stability of the optical properties of reflex reflecting devices as ageing takes place, it is not yet possible, at the present stage of technical development, to assess this stability by laboratory tests of limited duration.

X.2 The competent authorities of countries other than the country in which approval was granted may carry out similar checks in their territory. If a type of reflex reflector displays a regular deficiency when in use, they shall send any parts selected for testing to the authority which granted approval, with a request for its opinion.

X.3 In the absence of other criteria, the concept of " regular deficiency " of a type of reflex reflector when in use shall be interpreted in accordance with paragraph 6.1 of this Regulation.

ANNEX XI

RESISTANCE TO HEAT

XI.1 The reflex reflecting device shall be kept for 12 consecutive hours in a dry atmosphere at a temperature of 65 ± 2°C.

XI.2 After this test, no cracking or appreciable distortion of the reflex reflecting device and, in particular, of its optical units must be visible.

XI.3 The colorimetric and photometric characteristics shall be checked in accordance with paragraphs V.3.1 and V.3.2.

ANNEX XII

COLOUR-FASTNESS*

XII.1 The authority which granted approval shall have the right to check the colour-fastness of a type of reflex reflecting device in service.

XII.2 The competent authorities of countries other than the country in which approval was granted may carry out similar checks in their territory. If a reflex reflector displays a regular deficiency when in use, they shall send any parts selected for testing to the authority which granted approval, with a request for its opinion.

XII.3 In the absence of other criteria, the concept of " regular deficiency " of a reflex reflector when in use shall be interpreted in accordance with paragraph 6.1 of this Regulation.

* Despite the importance of tests to check the colour-fastness of reflex reflecting devices, it is not yet possible, at the present stage of technical development, to assess colour-fastness by laboratory tests of limited duration.

Appendix to the Regulation and annexes

CHRONOLOGICAL ORDER OF TESTS

Article	*Test*	*Samples* *a*	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*	
6	General specifications : inspection .	×	×	×	×	×	×	×	×	×	×
VI	Shapes and dimensions : inspection .	×	×	×	×	×	×	×	×	×	×
VII	Colorimetry : inspection	×	×	×	×	×	×	×	×	×	×
	trichromatic co-ordinates in case of doubt		×								
VIII	Photometry : limited to 20′ and V = H = 0°	×	×	×	×	×	×	×	×	×	×
VIII.3	Complete			×	×						
IX.1	Water : 10 min in normal position .							×	×		
	10 min in inverted position							×	×		
	inspection							×	×		
V.3.1	Colorimetry : inspection							×	×		
	trichromatic coordinates in case of doubt							×	×		
V.3.2	Photometry : limited to 20′ and V = H = 0°							×	×		
IX.3	Fuels : 5 min							×	×		
	inspection							×	×		
IX.4	Oils : 5 min							×	×		
	inspection							×	×		
V.3.1	Colorimetry : inspection							×	×		
	trichromatic coordinates in case of doubt							×	×		
V.3.2	Photometry : limited to 20′ and V = H = 0°							×	×		
IX.2	Corrosion : 24 hours					×	×				
	2 hours' interval					×	×				
	24 hours					×	×				
	inspection					×	×				
IX.5	Reverse side : 1 min					×	×				
	inspection					×	×				
XI	Heat : 12 h at 65° ± 2°C					×	×				
	inspection for distortion					×	×				
V.3.1	Colorimetry : inspection					×	×				
	trichromatic coordinates in case of doubt					×	×				
V.3.2	Photometry : limited to 20′ and V = H = 0°					×	×				
X	Stability with ageing										
V.3.1	Colorimetry : inspection or trichromatic coordinates										
V.3.2	Photometry : limited to 20′ and V = H = 0°										
XII	Colour-fastness										
V.3.1	Colorimetry : inspection or trichromatic co-ordinates										
V.3.2	Photometry : limited to 20′ and V = H = 0°										
V.1	Deposit of samples with authorities .			×	×						