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(Fifty-first session, 15-19 September 2003,
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PROPOSAL FOR DRAFT AMENDMENTS TO REGULATION No. 65

(Special warning lamps)

Transmitted by the Experts from France, Germany and the United Kingdom

Note: The text reproduced below was prepared jointly by the experts from France, Germany and the United Kingdom in order to improve the visibility of vehicles using the special warning lamps. It is based on the text of documents TRANS/WP.29/GRE/2002/3 and Add.1. The revised proposal would be considered as Supplement 4 to the Regulation; however, a suggestion was made to modify them into the 01 series of amendments.

Note: This document is distributed to the Experts on Lighting and Light-Signalling only.

The list of contents, amend to read:

"

.....

13. **Transitional provisions**
14. Names and addresses of technical services"

The list of contents, annexes, amend to read:

"

.....

- Annex 8- Minimum requirements for sampling by an inspector
- Annex 9- Guidelines for mounting requirements"**

The text of the Regulation,

Paragraphs 1. and 1.1., amend to read:

"1. DEFINITIONS

In general 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 and in addition for the purpose of this Regulation:

- 1.1. "Special warning lamp" means a lamp emitting blue or amber light intermittently for use on vehicles."

Insert new paragraphs 1.1.1. to 1.1.3., to read:

- 1.1.1. "Rotating or stationary flashing lamp" means a special warning lamp emitting light intermittently all around its vertical axis (Category T).
- 1.1.2. "Directional flashing lamp" means a special warning lamp emitting light intermittently in a limited angular area (Category X)
- 1.1.3. "Complete bar" means a special warning lamp with two or more optical systems emitting light intermittently all around its vertical axis."

Paragraphs 1.2. to 1.2.7., amend to read:

- "1.2. Special warning lamps of different types, mean special warning lamps which differ intrinsically in such matters as:
 - 1.2.1. the trade name or make,
 - 1.2.2. the size and form of the coloured cover,
 - 1.2.3. the optical system,

- 1.2.4. the nature of the beam (rotating or stationary flashing),
- 1.2.5. the colour of the light emitted;
- 1.2.6. the light source,
- 1.2.7. **light source module;**
- 1.2.8. whether the special warning lamp has one level (class 1) or two levels (class 2) of intensity,"

Paragraph 1.7., amend to read:

- "1.7. **“reference centre of the special warning lamp” means the intersection of the axis of reference with the exterior light-emitting surface; it is specified by the manufacturer of the special warning lamp. Unless otherwise specified it means the centre of the light-emitting source;**"

Paragraphs 1.9. to 1.9.2., amend to read:

- "1.9. Measuring directions
- 1.9.1. **The effective intensities of rotating or stationary (category T) lamps shall be determined in the directions within an angle of 360 deg around the reference axis of the special warning lamp:**
 - 1.9.1.1. in a horizontal plane perpendicular to the reference axis and passing through the reference centre of the special warning lamp;
 - 1.9.1.2. in cones, the generating lines of which produce with the above-mentioned horizontal plane angles, the values of which are indicated in the table in annex 5 to this Regulation.
 - 1.9.2. The effective intensities of directional flashing lamps (Category X) shall be measured in the directions indicated in paragraph 7.3.1 of annex 5 to this Regulation."

Paragraph 2.1., amend to read:

- "2.1. The application for approval of a special warning lamp shall be submitted by the owner of the trade name or mark or by his duly accredited representative.

It shall specify whether the special warning lamp is intended to emit amber (A) or blue (B) light, whether it falls within the directional flashing lamp (X) category, or whether it falls within the rotating or stationary flashing lamp (T) category, and whether it has one level of intensity (class 1), or two levels of intensity (class 2)."

Paragraph 2.2.2., amend to read:

"2.2.2. a brief technical description stating in particular **the light source** provided by the manufacturer of the special warning lamp **and including, where applicable, the electronic control unit(s), the ballast(s) or the light control gear(s) or the light source module and the light source module specific identification code.**"

Insert a new paragraph 2.2.4., to read:

"2.2.4. **For a special warning lamp device which is comprised of more than one separate unit, the intended geometrical arrangement when installed on the vehicle including the specification of each unit and the maximum distance between the units.**"

Paragraphs 2.2.4. and 2.2.5. (former), renumber as paragraphs 2.2.5. and 2.2.6.

Paragraph 3.3., amend to read:

"3.3. **Each special warning lamp shall be marked, legibly and indelibly, with the following information:**

- i) **The rated voltage of the special warning lamp, and either:**
- ii) **in the case of a special warning lamp device which is comprised of more than one separate unit, in brackets an identification mark for the specification of the individual separate unit followed by a "/" and the indication of the total number of separate units to meet the requirements; and either**
- iii) **in the case of a lamp with a removable light source, the category of light source according to the relevant ECE Regulation; or**
- iv) **in the case of a lamp with a non-replaceable light source or a light source module, the rated wattage."**

Insert a new paragraph 3.4., to read:

"3.4. **Directional flashing lamps having a "wide angle effect" (see definition of paragraph 7.3.1. in annex 5) shall bear an arrow indicating the "wide angle" side and the mounting position. The arrow showing in which position the device has to be installed shall be directed outwards from the vehicle when correctly installed.**"

Paragraph 4.4.1.3., amend to read:

"4.4.1.3. **"T" or "X" according to the category of the unit, followed by "A" or "B" according to the colour of the unit (see paragraph 2.1. above).**"

Insert new paragraphs 4.5. to 4.5.3., to read:

"4.5. **Light source module(s) submitted along with the approval of lamp must bear:**

- 4.5.1. the trade name or mark of the applicant; this marking must be clearly legible and indelible;
- 4.5.2. 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.
- 4.5.3. the marking of the rated voltage."

Paragraph 4.5. (former), renumber as paragraph 4.6. and amend to read:

- "4.6. The base, the cover and any external components of the special warning lamp referred to in paragraph 3.2. may bear one or more additional approval marks.

In addition, where the same lens is used, the latter may bear the different approval marks relating to the different types of special warning lamps or units of lamps, provided that the main body of the special warning also comprises the space described in paragraph 3.2. above and bears the approval marks of the actual functions.

If different types of special warning lamps comprise the same main body, it seems to be acceptable, that an inner part of the optical arrangement also comprises the space described in paragraph 3.2. above and bears the approval marks of the actual functions in such a way that it will be clearly visible from the outside of the lens."

Paragraph 4.6. and 4.7. (former), renumber as paragraph 4.7. and 4.8.

Paragraph 5.3., amend to read:

- "5.3. **When a non-replaceable light source is used it shall be permanently fixed to the special warning lamp."**

Insert new paragraphs 5.4. to 5.5., to read:

- "5.4. **Light source module**

- 5.4.1. **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.**
- 5.4.2. **The light source module(s) shall be tamperproof.**

- 5.5. In the case of a system that uses a special power supply, or a dedicated power supply, or light source control gear shall be part of special warning lamp."**

Paragraph 5.4. (former), renumber as paragraph 5.6.

Insert a new paragraph 5.7., to read:

- "5.7. A rotating or flashing special warning lamp device of Category T may consist of more than one optical system. In this case the requirements of annex 5 paragraph 8 must be met. The lamp manufacturer must supply mounting information to ensure that the various units are correctly mounted on a vehicle."**

Paragraph 7., amend to read:

- "7. CHECKING THE COLOUR OF THE SPECIAL WARNING LAMP

The colour shall comply with the colorimetric boundaries prescribed in annex 3 to this Regulation.

The calorimetric characteristics of the light emitted, expressed in CIE chromaticity co-ordinates, shall be evaluated using the light source as designed, working at **the voltage as specified in paragraph 4.2. in annex 5 of this Regulation.**

In case of a special warning lamp employing a Xenon flash tube, as an alternative the chromaticity co-ordinates may be deduced from the spectral distribution of the transmission of the cover and the transmission or reflection of any other optical effective elements which could impair the colour of the special warning lamp. The calculation then shall be based on a luminous source with a relative spectral distribution as listed in annex 6.

Insert new paragraphs 13. to 13.8., to read:

- "13. TRANSITIONAL PROVISIONS

- 13.1. As from the official date of entry into force of **[Supplement 4] */**, no Contracting Party applying this Regulation shall refuse to grant approvals under this Regulation as amended by **[Supplement 4] */**.
- 13.2. As from 24 months after the date of entry into force of **[Supplement 4] */**, Contracting Parties applying this Regulation shall grant approvals only if the type of special warning lamps to be approved meets the requirements of this Regulation as amended by **[Supplement 4] */**.
- 13.3. Contracting Parties applying this Regulation shall not refuse to grant extensions of approval to a preceding version of this Regulation, up to Supplement 3.

- 13.4. Approvals granted under this Regulation earlier than 24 months after the date of entry into force of **[Supplement 4]** */ and all extensions of approvals, granted subsequently, shall remain valid indefinitely. When the type of special warning lamps approved to a preceding version of the Regulation up to its Supplement 3 meets the requirements of this Regulation as amended by **[Supplement 4]** */, the Contracting Party which granted the approval shall notify the other Contracting Parties applying this Regulation thereof.
- 13.5. No Contracting Party applying this Regulation shall refuse a type of special warning lamps approved under this Regulation as amended by **[Supplement 4]** */.
- 13.6. As from the official date of entry into force of **[Supplement 4]** */, no Contracting Party applying this Regulation shall prohibit the fitting on a vehicle of special warning lamps approved under this Regulation as amended by **[Supplement 4]** */.
- 13.7. Contracting Parties applying this Regulation shall continue to allow the fitting on a vehicle of special warning lamps approved under the preceding version of the Regulation up to its Supplement 3 during the 48 months period which follows the date of entry into force of **[Supplement 4]** */.
- 13.8. Upon the expiration of a period of 48 months after the date of entry into force of **[Supplement 4]** */, Contracting Parties applying this Regulation may prohibit the fitting of special warning lamps, which do not meet the requirements of this Regulation as amended by **[Supplement 4]** */, on a new vehicle for which national type or individual approval was granted more than 24 months after the entry into force of **[Supplement 4]** */ to this Regulation."

Insert a new footnote */, to read:

"
*/ Proposed: **[01 series of amendments]**"

Paragraph 13. (former), renumber as paragraph 14.

Annex 1,

Item 1, amend to read:

"1. Special warning lamp / rotating / stationary flashing lamp / directional flashing lamp / complete bar / blue / amber 2/"

Item 2, amend to read:

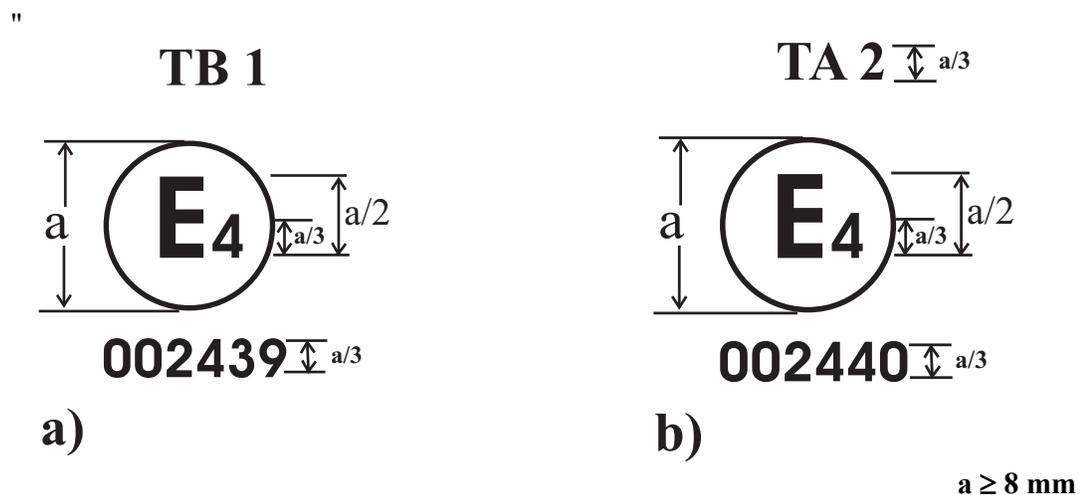
"2. Special warning lamp has one/ two levels of intensity 2/
Special warning lamp consists of separate units.

Item 4, amend to read:

4. **Used light source,**
- **category of filament lamp** or;
 - **discharge lamp.....** yes /no 2/ or;
 - **LED** yes /no 2/ or;
- Light source module:** yes /no 2/
- Light source module specific identification code:**"

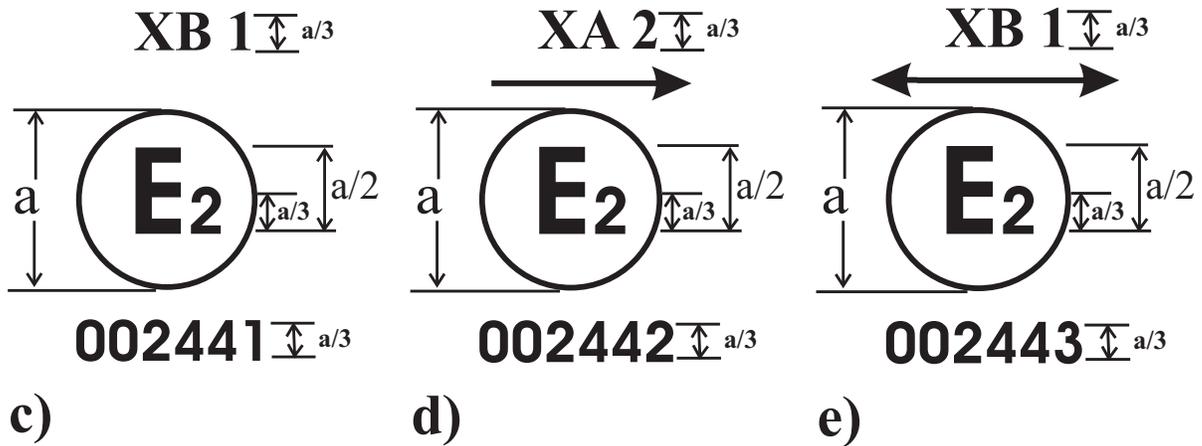
Annex 2,

Examples of approval marks, amend to read:



The above approval mark affixed to

- a) a special warning lamp indicates that it has been approved in the Netherlands (E4) under approval number 002439. The approval number shows that the approval was granted in accordance with the requirements of the Regulation in its original form and that it is a blue rotating or stationary flashing special warning lamp of class 1 (TB 1).
- b) a directional flashing lamp indicates that it has been approved in the Netherlands (E4) under approval number 002440. The approval number shows that the approval was granted in accordance with the requirements of the Regulation in its original form and that it is a amber rotating or stationary flashing special warning lamp of class 2 (TA 2)."



$a \geq 8 \text{ mm}$

- c) a directional flashing lamp indicates that it has been approved in France (E2) under approval number 002441. The approval number shows that the approval was granted in accordance with the requirements of the Regulation in its original form and that it is a blue directional flashing lamp of class 1 (XB 1).

The marking without an arrow indicates that the lamp has a narrow-angle effect.

- d) a directional flashing lamp indicates that it has been approved in France (E2) under approval number 002442. The approval number shows that the approval was granted in accordance with the requirements of the Regulation in its original form and that it is a amber directional flashing lamp of class 2 (XA 2).

The arrow indicates that the lamp has a wide-angle effect on the side indicated by the direction in which the arrow is pointing, which also indicates the side of the vehicle on which the device is to be mounted.

- e) a directional flashing lamp indicates that it has been approved in France (E2) under approval number 002443. The approval number shows that the approval was granted in accordance with the requirements of the Regulation in its original form and that it is a blue directional flashing lamp of class 1 (XB 1).

The double side arrow indicates that the lamp has a wide-angle effect to both sides, which also indicates that the lamp could be mounted on both side of the vehicle.

- f) 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.

- g) Example for the specification of individual separate units comprising a special warning lamp of (Category T) "Rotating or stationary flashing lamp".

("identification mark" / n)
in a case of four units e.g.: (1/4) or (front left/4) "

Annex 5,

Paragraph 4., amend to read:

"4. Light source conditions for test:

4.1. In the case of replaceable light sources a standard lamp shall be used.

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

In the case of a system that uses a special power supply, or a dedicated power supply, or light source control gear, the voltage declared by the manufacturer shall be applied to the input terminals of that power supply. Unless otherwise specified 6.75 V, 13.5 V or 28 V, as applicable shall be used.

4.3. In the case of filament lamps it is allowed to make the measurements with a standard filament lamp at reference flux conditions nearly at 12 V and recalculate the measured values by a factor, which is determined with this standard filament lamp at 13.5 Volt, if applicable."

Insert a new paragraph 5., to read:

"5. For any lamp equipped with non-filament light source(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 by applying the ratio achieved at HV between one minute and 30 minutes of operation."

Paragraph 5. (former), renumber as paragraph 6.

Paragraph 6. (former), renumber as paragraph 7. and amend to read:

"7. Frequency, time, and intensity of the emitted light

7.1. The frequency, the "ON" time and the "OFF" time shall be as specified in the table below:

		Colour blue or amber rotating system or flash light sources (category T and X)	
Frequency f (Hz)	max.	4	
	min.	2	
"ON" time t_H (s)	max.	0.4/f	
"OFF" time t_D (s)	min.	0.1	

Insert new paragraphs 7.2. to 7.3.1.2., to read:

"7.2. The effective luminous intensities (J_e) within the relevant vertical angles for a special warning lamp (Category T) shall be as specified in the table below:

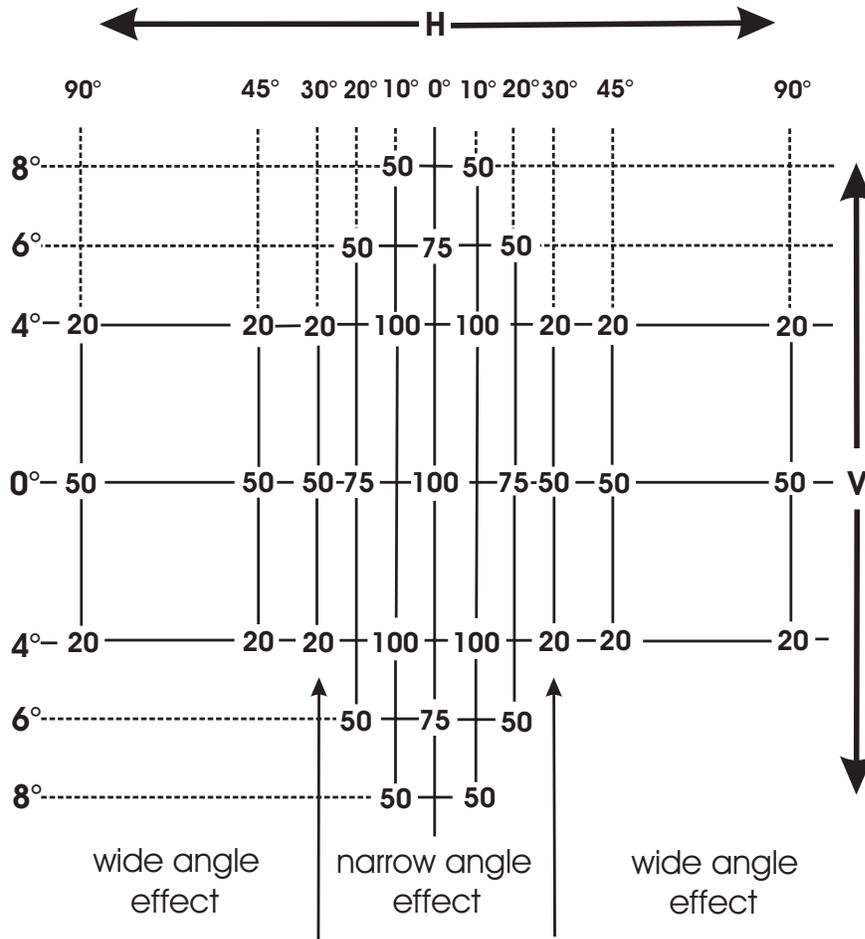
Category T			Colour	
			blue	amber
Minimum value of the effective luminous intensity J_e , within the specified vertical angles and a horizontal angle of 360° around the reference axis	0°	by day	120	230
		by night	50	100
	± 4°	by day	60	---
		by night	25	---
	± 8°	by day	----	170
		by night	----	70
Maximum value of the effective luminous intensity J_e	Inside ± 2°	by day	1700	
		by night	700	
	Inside ± 8°	by day	1500	
		by night	600	
	Outside the above areas	by day	1000	
		by night	300	

7.2.1. In the case of a special warning lamp device which is comprised of more than one separate unit, the geometrical arrangement(s) as installed at the vehicle seems to be acceptable, if the partial light distribution of each single separate unit is overlapping with each adjacent partial light distribution inside a horizontal angular range of 360° and in a vertical angular range as specified for the relevant category in a geometrical position corresponding to a distance of 20 m, from the vehicle on a vertical plane that is perpendicular to the longitudinal axis of the vehicle and located midway between the lamp units on a side of the vehicle.

- 7.3. The effective luminous intensities in the reference axis for a directional flashing lamp (Category X) shall be as specified in the table below:

Category X			Colour	
			blue	amber
Minimum value of the effective luminous intensity I_e on the reference axis	$H = 0^\circ$ $V = 0^\circ$	by day	200	400
		by night	100	200
Maximum value of the effective luminous intensity J_e	inside $H = \pm 10^\circ$ $V = \pm 4^\circ$	by day	3000	1500
		by night	1500	600
	inside $H = \pm 20^\circ$ $V = \pm 8^\circ$	by day	1500	1500
		by night	600	600
	Outside the above areas	by day	1000	1000
		by night	300	300

- 7.3.1. Table of standard light distribution for special warning flash lamp (Category X)



Minimum horizontal angular range of category "narrow angle effect" is 30° left to 30° right and for category "wide angle effect" 90° directed outwards the vehicle and 30° to the inside.

- 7.3.1.1. The direction $H = 0^\circ$ and $V = 0^\circ$ corresponds to the reference axis. (On the vehicle it is horizontal, parallel to the median longitudinal plane of the vehicle and oriented in the required direction of visibility). It passes through the centre of reference. The values shown in the table give, for the various directions of measurements, the minimum intensities as a percentage of the minimum required in the axis for each lamp (in the direction $H = 0^\circ$ and $V = 0^\circ$).
- 7.3.1.2. Within the field of light distribution of paragraph 7.3.1. schematically shown as a grid, the light pattern should be substantially uniform, i.e. the light intensity in each direction of lowest minimum value being shown on the grid lines surrounding the questioned direction as a percentage."

Paragraphs 7. to 7.3. (former), renumber as paragraphs 8. to 8.3.

Add a new annex 9, to read:

"Annex 9

GUIDELINES FOR MOUNTING REQUIREMENTS */

1. Mounting

1.1. Mounting accuracy of special warning lamps

When mounted correctly, each lamp shall be within 1° of the position specified. In the case of intermediate quick release devices, the mounting shall be made on a fixing zone for which it is intended. To check mounting accuracy, the lamp shall be mounted five times on an appropriate test fixture, and its attitude determined. In no cases shall the inclination vary by more than 1° from the mounting plane or from a plane perpendicular to the mounting tube axis.

1.2. Mounting position of directional flashing lamps

In width: The inner edges of the directional flashing lamps should be as far away as possible to each other.

In height: Not less than 500 mm and not more than 2100 mm above the ground.
In application of the special warning flash lamps as a front warning system not less than 800 mm above the ground or 650 mm if the shape of the bodywork makes it impossible to keep within 800 mm and not more than 1200 mm or 1400 mm if the shape of the bodywork makes it impossible to keep within 1200 mm.

2. Geometric visibility

The apparent surface of a special warning lamp shall be visible within the field defined by the following angles of geometric visibility.

2.1. Rotating or stationary flashing lamps (Category T)

a) horizontal angle 360°

b) vertical angle:

- 1) for blue lights, 4° above and below the horizontal plane passing through the centre of the light source;
- 2) for amber lights, 8° above and below the horizontal plane passing through the centre of the light source;

2.2. Directional flashing lamps (Category X)

a) horizontal angle:

- Directional flashing lamp of category "narrow angle effect":
30° to the left and to the right to the axis through the centre of the light sources parallel to the longitudinal axis of the vehicle
- Directional flashing lamp of category "wide angle effect":
90° directed outwards the vehicle and 30° to the inside to the axis through the centre of the light sources parallel to the longitudinal axis of the vehicle

b) vertical angle:

- 8° above and below to the axis through the centre of the light sources parallel to the longitudinal axis of the vehicle.

The vertical angle below the horizontal plane can be smaller if the geometric visibility of the lamp is met at a point located 1 m above the surface on which the vehicle stands and at 20 m from the vehicle.

In the case where more than one lamp is fitted, the requirements are met if at least one lamp is visible under the conditions specified

3. Electrical connections

The directional flashing lamps **cannot switch on unless the special warning lamps are already on.**

***/ Nothing in this annex shall preclude the national authorities to impose requirements differing from these guidelines. "**
