

## 40-1 Side-marker lamps : Effective date from 2011/1/1

Refer to: R91 00-S15

### 40-1.1 Effective date and Scope:

40-1.1.1 Effective date from 2011/1/1, new types of side-marker lamps using in vehicles of category symbols M, N and O, it shall comply with this regulation and shall be use bulbs that is conform with "Filament lamps" of this Direction (according to paragraph 40-1.1.3, it shall exclude paragraph 40-1.2.1).

40-1.1.2 Effective date from 2013/1/1, all types of side-marker lamps using in vehicles of category symbols M, N and O, which was confirmed to "40 side-marker lamps" of this "Directions" and its light source is red, it shall conform to the stipulation of red side-marker lamps' luminosity and irradiated angle in this regulation.

40-1.1.3 Effective date from 2017/1/1, new types of side-marker lamps using in vehicles of category symbols M, N and O, and from 2019/1/1, existing types of side-marker lamps using in vehicles of category symbols M, N and O, shall comply with 40-1.2.1 in addition, except the applicants applying for low volume safety approval and applying for vehicle-by-vehicle low volume.

40-1.1.4 For the vehicles imported by authorities, organizations, schools or individuals for self-use only could exempt from regulation of "side-marker lamps".

40-1.1.5 For the low volume type safety approval, maximum 20% deviation of the levels of intensity standard of this test is allowed, and if the light source is LED, it can omit the failure conditions test.

40-1.2 Side-marker lamps: means a lamp conform to 40-1.2.1 Specifications marked and used to indicate the presence of the vehicle when viewed from the side.

### 40-1.2.1 Specifications marked

40-1.2.1.1 Means the marks shall be clearly legible on the outside of the marking material and shall be indelible to include below:

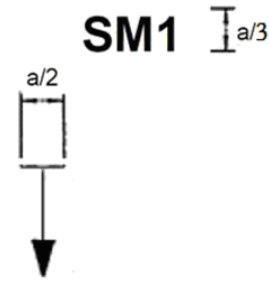
40-1.2.1.1.1 Brand (or marking), type of replaceable light sources(and/or MD(or MODULE) the light source module specific identification code), non-replaceable light sources or light source module(s), bear the marking of the rated voltage (or range of voltage) and rated wattage.

40-1.2.1.1.2 The light source module must to mark brand (or marking), MD(or MODULE) the light source module specific identification code, rated voltage (or ranged voltage)and rated wattage. However this provision does not apply to the LED is non-replaceable.

40-1.2.1.1.3 It expressed in the letter "SM1" or "SM2".

40-1.2.1.1.4 On devices with reduced light distribution in conformity to paragraph 40-1.4.6 to this Regulation a vertical arrow starting from a horizontal segment and directed downwards (figure as below , "a" is at least 5 mm).

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40-1.3 Side-marker lamps shall according to suitable variants and range of principle :

40-1.3.1 The same brand

40-1.3.2 The same characteristics of the optical system (levels of intensity, light distribution angles, category of light source, light source module, etc.) , however , if bulbs or filter's color is change that it doesn't mean to change the variants.

40-1.4 Photometric measurements :

40-1.4.1 SM1 Category of side-marker lamps:

Minimum values: the reference axis, at which it shall be 4.0 cd.

SM2 Category of side-marker lamps:

Minimum values: the reference axis, at which it shall be 0.6 cd. (see Table 1, Figure1 and Figure 2).

40-1.4.2 The vertical angles required for light distribution in space are indicated in Fig 3; the horizontal angle of SM1 is indicated in Fig 4; the horizontal angle of SM2 is indicated in Fig 5

40-1.4.3 SM1 and SM2 Category of side-marker lamps:

Minimum values: 0.6 cd, at any point other than the reference axis

Maximum values: 25.0 cd, at any point

40-1.4.4 In the case of a lamp containing more than one light source: the lamp shall comply with the minimum intensity required when any one light source has failed; when all light sources are illuminated the maximum intensity specified may not be exceeded.

40-1.4.5 All light sources which are connected in series are considered to be one light source.

40-1.4.6 The angle of 10 degrees below the horizontal may be reduced to 5 degrees in case of lamps with a mounting height with its H plane less than 750 mm above the ground.

40-1.4.7 In the case of light source modules, it shall be checked that:

40-1.4.7.1 The design of the light source module(s) shall be such as:

40-1.4.7.1.1 that each light source module can only be fitted in no other position than the designated and correct one and can only

be removed with the use of tool(s);

40-1.4.7.1.2 If there are more than one light source module used in the housing for a device, light source modules having different characteristics can not be interchanged within the same lamp housing.

40-1.4.7.2 The light source module(s) shall be tamperproof.

40-1.4.7.3 A light source module shall be so designed that regardless of the use of tool(s), it shall not be mechanically interchangeable with any replaceable approved light source.

#### 40-1.4.8 Photometric test

40-1.4.8.1 For replaceable light sources:

(a) In the case of filament lamps, that is necessary to produce the reference luminous flux required for that category of filament lamp;

(b) In the case of LED light sources of 6.75 V or 13.5 V; the luminous flux value produced shall be corrected. The correction factor is the ratio between the objective luminous flux and the mean value of the luminous flux found at the voltage applied.

(c) When equipped with light sources at 6.75 V, 13.5 V or 28.0 V, the luminous intensity values produced shall be corrected. For filament lamps 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).

For LED light sources the correction factor is the ratio between the objective 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 light source used shall not deviate more than +/- 5 per cent from the mean value. Alternatively and in case of filament lamps only, 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.

40-1.5 Trichromatic coordinate: The colour of the light emitted inside the field shall be amber defined in "The installation of lighting and light-signaling devices" of this "Directions" ( see Figure 1 and Figure 2 ) , outside this field, no sharp variation of colour shall be observed. These requirements shall apply within the range of variable luminous intensity produced by testing conditions. 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.

40-1.6 In the case of replaceable light source(s):

40-1.6.1 Any category or categories of light source(s) approved according to 「Filament lamps」 may be used, provided that no restriction on the use is made in 「Filament lamps」 and its series of amendments in force at the time of application for type approval.

40-1.6.2 The design of the device shall be such that the light source(s) can be fixed in no other position but the correct one.

40-1.6.3 The light source(s) holder shall conform to the characteristics given in IEC Publication 60061. The holder data sheet relevant to

the category of light source used, applies.

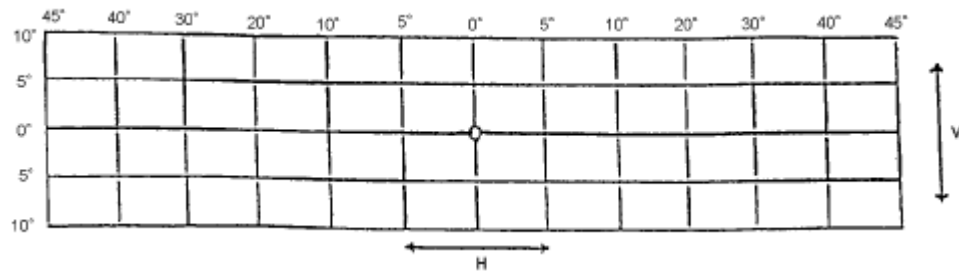


Figure1. SM1 light distribution

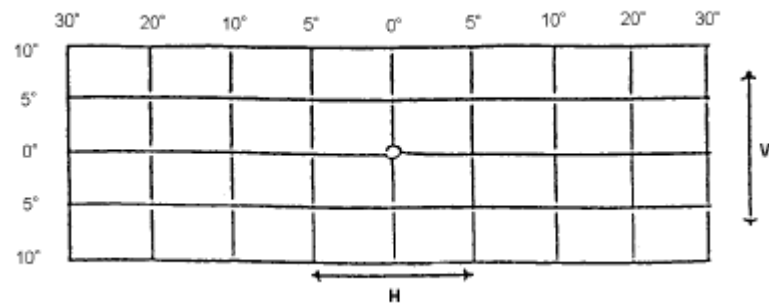


Figure2. SM2 light distribution

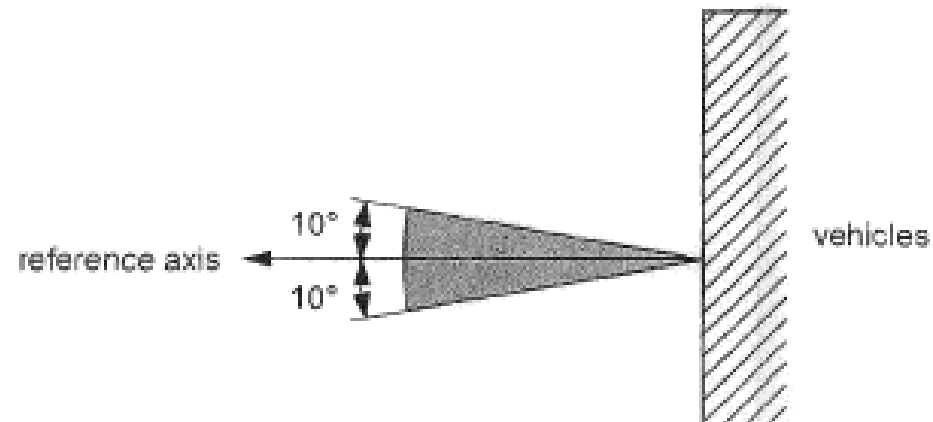


Figure 3. Minimum vertical angles, SM1 and SM2

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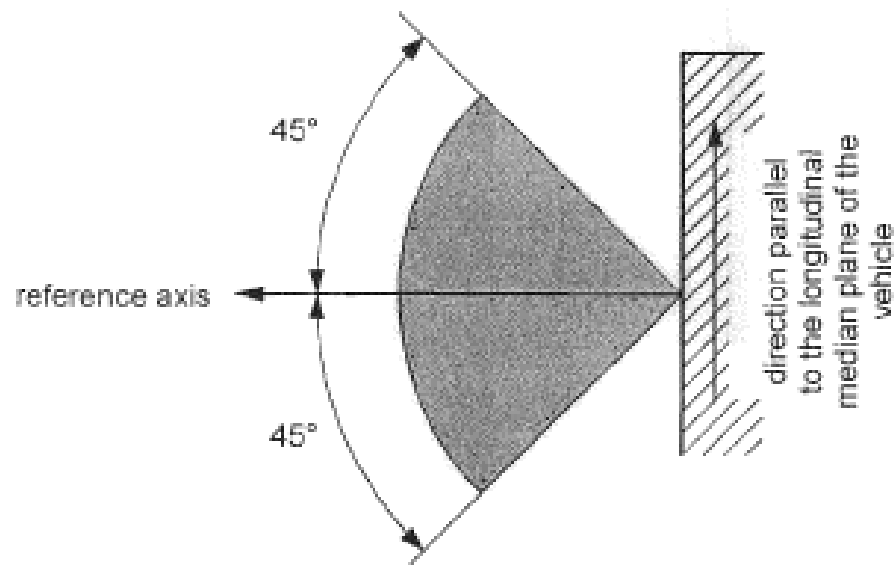


Figure 4. Minimum horizontal angles, SM1

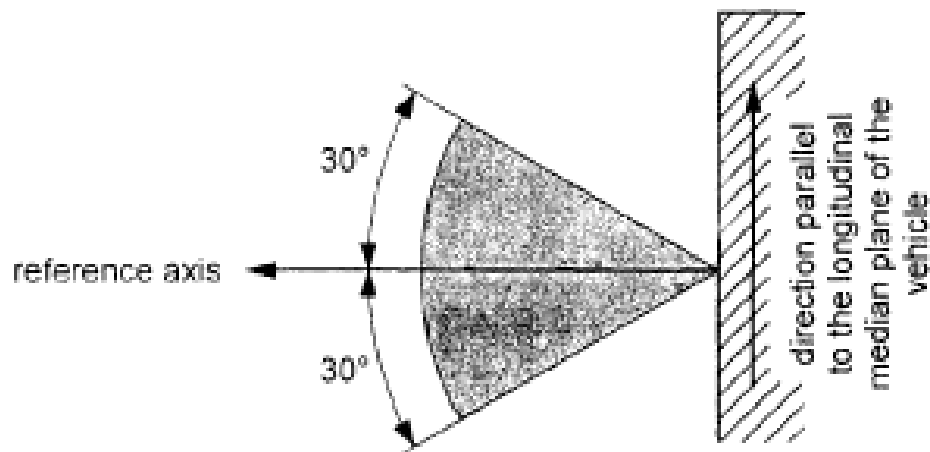


Figure 5. Minimum horizontal angles, SM2

Table 1. The requirement of intensity and angle field of light emitted by side-marker lamps

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Side-marker lamp category		SM1	SM2
Minimum intensity	In the axis of reference	4.0 cd	0.6 cd
	Within the specified angular field, other than above	0.6 cd	0.6 cd
Maximum intensity		25.0 cd	25.0 cd
Angular field	Horizontal	±45°	±30°
	Vertical	±10°	±10°

<sup>2/</sup> In addition, for red side-marker lamp, in the angular field from 60 degrees to 90 degrees in horizontal direction and +/- 20 degrees in vertical direction towards the front of the vehicle, the maximum intensity is limited to 0.25 cd.

#### 40-1.7 Test procedure

##### 40-1.7.1 Measuring condition for each test:

40-1.7.1.1 All measurements, photometric and colorimetric shall be carried out with an uncoloured or coloured standard light source of the category prescribed for the device, supplied with the voltage:

40-1.7.1.1.1 In the case of lamps with non-replaceable light sources: 6.75 V and 13.5 V respectively.

40-1.7.1.1.2 In the case of a system that uses an electronic light source control gear being part of the lamp<sup>1</sup> applying at the input terminals of the lamp the voltage declared by the manufacturer or, if not indicated, 6.75 V, 13.5 V or 28.0 V, respectively.

40-1.7.1.1.3 In the case of a system that uses an electronic light source control gear not being part of the lamp, the voltage declared by the manufacturer shall be applied to the input terminals of the lamp.

40-1.7.2 The test laboratory shall require from the manufacturer the light source control gear needed to supply the light source and the applicable functions.

40-1.7.3 The limits of the apparent surface in the direction of the reference axis of a light signalling device shall be determined.