37 Stop lamps

Refer to: R07 02-S19, R50 00-R2/C1

37.1 Effective date and Scope:

37.1.1 Effective date from 2006/7/1, the new vehicle variants of category symbols M, N and O, and from 2008/7/1 all vehicle variants of category symbols M, N and O, shall comply with this regulation and shall be use bulbs that is conform with ”Filament lamps“ of this Direction.

37.1.2 Effective date from 2009/1/1, the new vehicle variants of category symbols L1 and L3, and from 2011/1/1 all vehicle variants of category symbols L1, L2, L3 and L5, shall comply with this regulation and shall be use bulbs that is conform with ”Filament lamps“ of this Direction.

37.1.3 For the vehicles imported by authorities, organizations, schools or individuals for self-use only could exempt from regulation of “stop lamps”.

37.1.4 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.

37.2 Stop lamps:

37.2.1 Means the lamp used to indicate to other road-users to the rear of the vehicle that its driver is applying the service brake.

37.2.2 Stop lamp with two levels of intensity: means the lamp with the system used to reduce illumination at night.

37.2.3 In case of failure of the variable intensity control of a stop lamp category S2 emitting more than the maximum value of category S1, requirements of steady luminous intensity of the respective category shall be fulfilled automatically.

37.2.4 An interdependent lamp system shall meet the requirements when all its interdependent lamps are operated together.

37.3 Stop lamps shall according to suitable variants and range of principle：

37.3.1 Brand

37.3.2 The characteristics of the optical system (levels of intensity, light distribution angles, category of filament lamp, light source module, etc.)，however，if bulbs or filter’s color is change that it doesn’t mean to change the variants.

37.4 Photometric measurements:

37.4.1 Within the field of light distribution schematically shown as a grid in Figure 1, the light pattern should be substantially uniform. The intensities shall be measured with the filament lamp(s) continuously alight. In the case of devices of categories S2, that elapses between energising the light source(s) and the light output on the reference axis to reach 90 per cent of the value measured shall be measured for the extreme levels of luminous intensity produced by the device. The time measured for the lowest luminous intensity shall not exceed the time measured for the highest luminous intensity.

37.4.2 In each direction corresponding to the points in the light distribution be not less than the product of the minimum specified in Table1

by the percentage specified in the said figure of the direction in question. In no direction within the space from which the light-signaling device is visible, exceed the maximum specified in Table. 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 degrees downwards.

37.4.2.1 For an assembly of two or more lamps the total intensity shall not exceed the maximum value prescribed for a single lamp.

37.4.2.2 When an assembly of two independent lamps to be type approved as "D" lamps having the same function is deemed to be a single lamp, it shall comply with the requirements for:

37.4.2.2.1 Maximum intensity if all lamps together are lit;

37.4.2.2.2 Minimum intensity if either lamp has failed.

37.4.2.3 In case of failure of a single lamp containing more than one light source the following provisions shall apply:

37.4.2.3.1 A group of light sources, wired so that the failure of any one of them causes all of them to stop emitting light, shall be considered to be one light source.

37.4.2.3.2 The lamp shall comply with the minimum intensity required when any one light source has failed (refer to figure 1). However, for lamps designed for only two light sources, 50 per cent of the minimum intensity in the axis of reference of the lamp shall be considered sufficient, provided that a note in the communication form states that the lamp is only for use on a vehicle fitted with an operating tell-tale which indicates when any one of these two light sources has failed;

37.4.3 Intensity of the light emitted:

37.4.3.1 In case of vehicles of category symbols M, N and O:

Throughout the fields defined in the diagram of angles required for light distribution in space of the lamps, the intensity of the light emitted must be not less than 0.3 cd for stop lamps.

37.4.3.2 In case of vehicles of category symbols L1 and L3:

Throughout the fields defined in the diagram of angles required for light distribution in space of the lamps, the intensity of the light emitted must be not less than 0.3 cd

37.4.4 Angles required for light distribution in space of the lamps:

37.4.4.1 In the case of rear position (side) lamps used on the vehicles of M, N and O categories, horizontal angles are shown in Figure 2. The minimum vertical angles of light distribution in space are 15 degrees above and 15 degrees below the horizontal except for lamps with a permissible mounting height not more than 750 mm above the ground, for which they are 15 degrees above and 5 degrees below the horizontal.

37.4.4.2 In the case of rear position (side) lamps used on the vehicles of L1 and L3 categories, horizontal angles are shown in Figure 2. Vertical angles are +15° / -10°.

37.4.5 The variable intensity control shall not generate signals which cause luminous intensities as below:

37.4.5.1 outside the range specified in Figure 1. above and

37.4.5.2 exceeding the respective steady luminous intensity maximum specified in Figure 1. for the specific device

(a) for systems depending only on daytime and night time conditions: under night time conditions

(b) for other systems: under standard conditions.

37.4.6 In the case of stop lamps used on the vehicles of category symbols L1 and L3:

37.4.6.1 In the case of stop lamps used on the vehicles of category symbols L1 and L3:

(a) Minimum intensity if one lamp has failed.

(b) For an assembly of two or more lamps the total intensity shall not exceed the maximum value prescribed for a single lamp, multiplied by 1.4.

(c) A group of light sources, wired so that the failure of any one of them causes all of them to stop emitting light, shall be considered to be one light source.

37.5 Trichromatic coordinate: The colour of the light emitted inside the field shall be red defined in “The installation of lighting and light-signaling devices” of “Directions” that is fitting for categories M, N,O and L1. Outside this field, no sharp variation of colour shall be observed（see Figure 1）. These requirements shall also apply within the range of variable luminous intensity produced by stop lamps of category S2. The source of light is according to each testing measure conditions to proceed. 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.

37.6 Test conditions for each measuring

37.6.1 Vehicles of category symbols M, N and O：

37.6.1.1 Testing voltage

37.6.1.1.1 All measurements, photometric and colorimetric, on lamps equipped with non-replaceable light sources (filament lamps and others) shall be made at 6.75 V, 13.5 V or 28.0 V, respectively, the categories L1 and L3 are follow the manufactories’ specification.

37.6.1.1.2 In case of a lamp with replaceable light source, if not supplied by an electronic light source control gear or a variable intensity control, with an uncolored or colored standard filament lamp of the category prescribed for the device, supplied with the voltage necessary to produce the reference luminous flux required for that category of filament lamp,

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.

37.6.1.1.3 In the case of a system that uses an electronic light source control gear or a variable intensity control, being part of the lamp 6/ 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.

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

37.6.1.2 However, in the case of light sources operated by a variable intensity control to obtain variable luminous intensity, photometric measurements shall be performed according to the applicant's description.

37.6.1.3 The test laboratory shall require from the manufacturer the light source control gear or a variable intensity control needed to supply the light source and the applicable functions.

37.6.1.4 The limits of the apparent surface in the direction of the reference axis of a lightsignalling device shall be determined.

37.6.2 Vehicles of category symbols L：

37.6.2.1 Testing voltage

37.6.2.1.1 In case of a lamp with replaceable light source, if not supplied by an electronic light source control gear with an uncoloured or coloured standard filament lamp of the category prescribed for the device, at the necessary voltage to produce the reference luminous flux required for that category of filament lamp;

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.

37.6.2.1.2 In the case of a lamp equipped with non-replaceable light sources (filament lamps and other), at 6.75 V, 13.5 V or 28.0 V respectively;

37.6.2.1.3 In the case of a system that uses an electronic light source control gear being part of the lamp3 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;

37.6.2.1.4 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.

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

37.6.2.3 The limits of the apparent surface in the direction of the reference axis of a lightsignalling device shall be determined.

37.7 In the case of light source modules, it shall be checked that:

37.7.1 The design of the light source module(s) shall be such as:

37.7.1.1 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);

37.7.1.2 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.

37.7.2 The light source module(s) shall be tamperproof.

37.7.3 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.

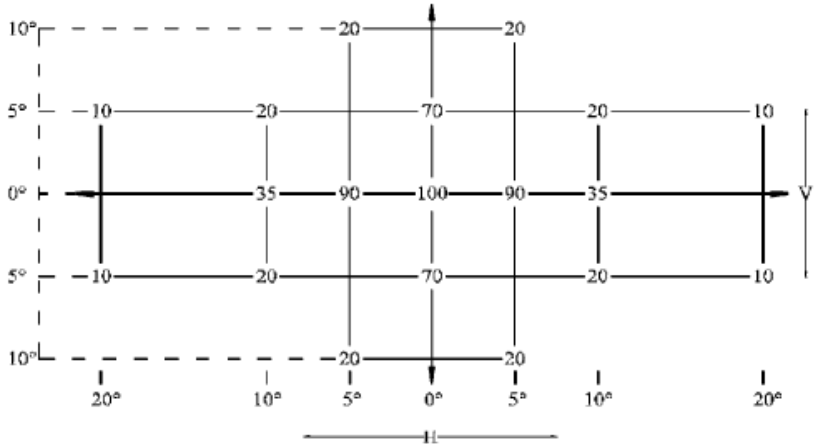

Fig 1. Light intensity distribution in percentage

Table 1.In the reference axis, the light emitted shall be at least equal to the minimum values and not exceed the maximum values specified below：

Light Intensity (Candelas) Stop lamp	Minimum intensities cd	Maximum values in cd when used as	
		Single lamp	Lamp (single) marked “D”
S1（steady）	60	260	130
S2（variable）	60	730	365

Lumination (cd) Braking lamp	Minimum intensities	Maximum intensities
Category L1 & L3 vehicle	40	185

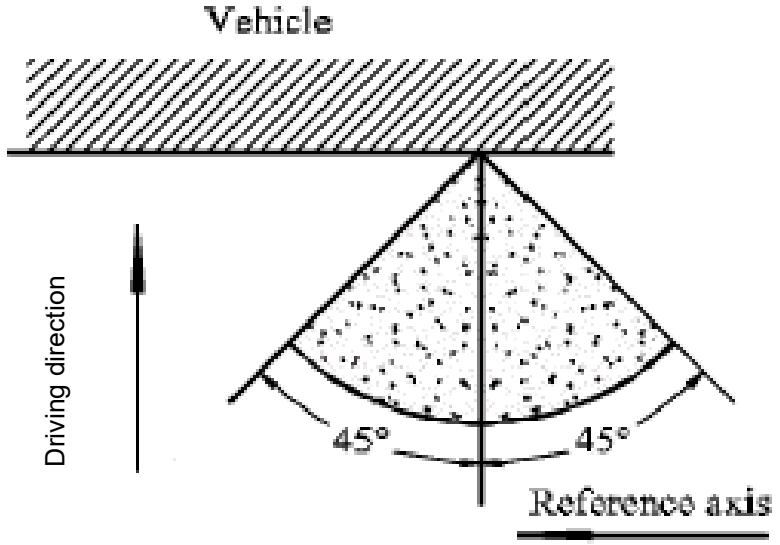

Fig 2. Stop lamps (S1 and S2)