

## 38 S3 stop lamps

Refer to: R07 02-S23

### 38.1 Effective date and Scope:

- 38.1.1 Effective date from 2006/7/1, new types of S3 stop lamps using in vehicles of category symbols M, N and O, and from 2008/7/1 all types of S3 stop lamps using in vehicles 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(according to paragraph 38.1.2, it shall exclude paragraph 38.2.2).
- 38.1.2 Effective date from 2017/1/1, new types of S3 stop lamps using in vehicles of category symbols M, N and O, and from 2019/1/1, existing types of S3 stop lamps using in vehicles of category symbols M, N and O, shall comply with 38.2.2 in addition, except the applicants applying for low volume safety approval and applying for vehicle-by-vehicle low volume.
- 38.1.3 For the vehicles imported by authorities, organizations, schools or individuals for self-use only could exempt from regulation of "S3 stop lamps".
- 38.1.4 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.

38.2 S3 Stop lamp: means the lamp conforms to 38.2.2 Specifications marked and used to indicate to other road-users to the rear of the vehicle that its driver is applying the service brake.

38.2.1 In case of failure of the variable intensity control of a stop lamp category S4 emitting more than the maximum value of category S3, requirements of steady luminous intensity of the respective category shall be fulfilled automatically.

### 38.2.2 Specifications marked

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

38.2.2.1.1 Brand (or marking), type of replaceable light sources(and/or MD(or MODULE) the light source module specific identification code).

38.2.2.1.2 In case of lamps with an electronic light source control gear or a variable intensity control and/or non-replaceable light sources and/or light source module(s), bear the marking of the rated voltage or range of voltage and rated wattage.

38.2.2.1.3 Lamps operating at voltages other than the nominal rated voltages of 6 V, 12 V or 24 V respectively, by the application of an electronic light source control gear or a variable intensity control being not part of the lamp, or having a secondary operating mode, must also bear a marking denoting the rated secondary design voltage.

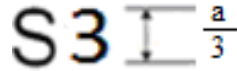
38.2.2.1.4 The light source module must to mark brand (or marking), MD(or MODULE) the light source module specific identification code, rated voltage (or ranged voltage)and rated wattage. However this provision does not apply to the LED is non-replaceable.

38.2.2.1.5 An electronic light source control gear or a variable intensity control being part of the lamp but not included into the

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lamp body shall bear the name of the manufacturer and its identification number.

- 38.2.2.1.6 On devices meeting the requirements of this Regulation in respect of the stop-lamps, the letter "S" followed by the figure (figure as below , "a" is at least 5 mm):



When the device meets the specific requirements for category S3 stop-lamps and produces steady luminous intensity;

When the device meets the specific requirements for category S4 stop-lamps and produces variable luminous intensity;

- 38.2.2.1.7 On devices with reduced light distribution in conformity to paragraph 38.4.4 to this Regulation a vertical arrow starting from a horizontal segment and directed downwards.

- 38.2.2.1.8 On interdependent lamps, which may be used as part of an interdependent lamp system, the additional letter "Y" to the right of the symbol mentioned in paragraph 38.2.2.1.6 shall be marked on each device.

38.3 S3 stop lamps shall according to suitable variants and range of principle :

38.3.1 The same brand

38.3.2 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.

38.3.3 The same system used to reduce illumination at night - in the case of stop-lamps with two levels of intensity.

38.4 Photometric measurements:

38.4.1 For category S3 stop lamp for which 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 R2, 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 to obtain the lowest luminous intensity shall not exceed the time measured to obtain the highest luminous intensity.

38.4.2 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-signalling device is visible, exceed the maximum specified in Table.

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

38.4.2.2 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:

38.4.2.2.1 Maximum intensity if all lamps together are lit;

38.4.2.2.2 Minimum intensity if either lamp has failed.

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

38.4.2.3.1 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.

38.4.2.3.2 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;

38.4.3 For category S3 or S4 stop lamp for which horizontal angles required for light distribution in space of the lamps are shown in Figure 2. The minimum vertical angles of light distribution in space are 10 degrees above and 5 degrees below the horizontal; for lamps intended to be installed with their H plane at a mounting height more than 2,100 mm above the ground, for which they are 5 degrees above and 15 degrees below the horizontal.

38.4.4 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.

38.4.4.1 In case of vehicles of category symbols M, N, 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 devices of categories S3 and for those of categories S4 by day; it shall not be less than 0.07 cd for devices of categories S4 by night;

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

38.4.5.1 outside the range specified in Figure 1. above and

38.4.5.2 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.

38.5 Trichromatic coordinates: The colour of the light emitted inside the field shall be red defined in "The installation of lighting and light-signaling devices" of "Directions" (see Figure 1), Outside this field, no sharp variation of colour shall be observed. These requirements shall also apply within the range of variable luminous intensity produced by stop lamps of category S4. 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.

38.5.1 These requirements shall also apply within the range of variable luminous intensity produced by rear position (side) lamps of category R2.

38.5.2 In the case of a category S3 or S4 stop lamp, which is intended to be mounted inside the vehicle, the colorimetric characteristics shall be verified with the worst case combination(s) of lamp and rear window(s) or sample plate(s).

38.6 In the case of replaceable light source(s):

38.6.1 Any category or categories of light source(s) approved according to “Filament lamps” of VSTD may be used, it's shall concern about relevant special restriction.

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

38.6.3 The light source(s) holder shall conform to the characteristics given in IEC Publication 60061, and the holder data sheet relevant to the category of light source used, applies.

38.7 Test conditions for each measuring

38.7.1 Testing voltage

38.7.1.1 For lamps equipped with non-replaceable light sources (filament lamps and others) : the light source of the lamp shall be used. And shall be measured at 6.75 V, 13.5 V or 28.0 V, respectively according to specs of lamps. For categories L1 and L3 the manufactories' specifications are followed.

38.7.1.2 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 light source of the category prescribed for the device, supplied with the voltage:

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

(b) In the case of LED light source(s) of 6.75 V, 13.5 V or 28.0 V; the luminous flux value produced shall be corrected. The correction factor is the ratio between the objective luminous flux and the value of the luminous flux found at the voltage applied.

(c) When equipped with light source(s) 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.

38.7.1.3 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

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V respectively.

38.7.1.4 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.

38.7.2 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.

38.7.3 The technical service 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.

38.7.4 The limits of the apparent surface in the direction of the reference axis of a light-signaling device shall be determined.

38.7.5 In the case of a category S3 or S4 stop lamp, which is intended to be mounted inside the vehicle, a sample plate or sample plates (in case of different possibilities) as supplied shall be positioned in front of the lamp to be tested, in the geometrical position(s) as described in the application drawing(s) .

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

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

38.8.1.1 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);

38.8.1.2 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.

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

38.8.3 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.

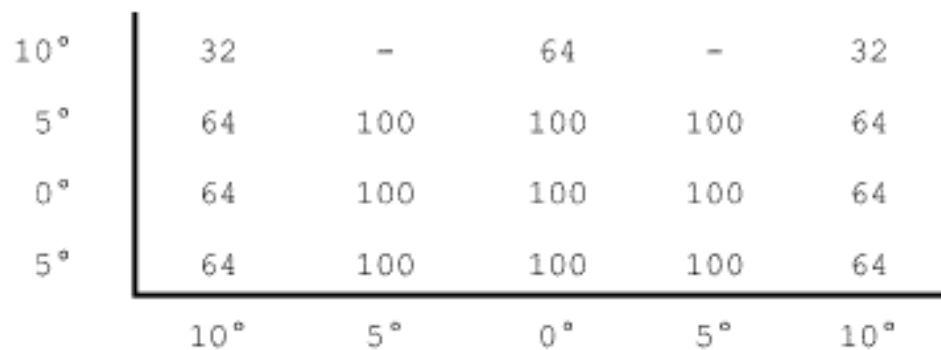


Fig 1. Light intensity distribution in percentage

| 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<br>(Candelas)<br>Stop lamp  | Minimum<br>intensities<br>cd | Maximum values in cd when used as |                          |
|   |                              | Single lamp                       | Lamp (single) marked "D" |
| S3 ( steady )   | 25                           | 110                               | 55*                      |
| S4 ( variable )   | 25                           | 160                               | 80                       |

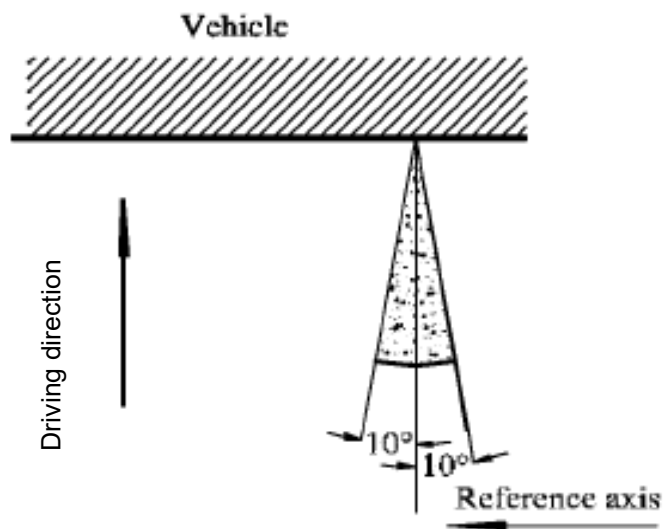


Fig 2. Stop-lamps (S3/S4)

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