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Working Party on Lighting and Light-Signalling (GRE)

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agenda item 22.3.)

**PROPOSAL FOR DRAFT AMENDMENTS TO REGULATION No. 38**

(Rear fog lamps)

Transmitted by the expert from the Working Party "Brussels 1952" (GTB)

Note: The text reproduced below was prepared by the expert from GTB, in order to include into Regulation No. 38 new provisions concerning rear fog lamps with variable luminous intensity. The proposal is based on Revision 1 including Amendments 1 to 4. The modifications to the existing text of the Regulation are marked in **bold** characters.

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

## A. PROPOSAL

Paragraph 1.3., amend to read:

- "1.3. "Rear fog lamps of different types" means lamps which differ in such essential respects as:
- the trade name or mark;
  - the characteristics of the optical system, (levels of intensity, light distribution angles, category of filament lamp, light source module, etc.);
  - **the variable intensity control, if any.**

A change of the colour of the filament lamp or the colour of any filter does not constitute a change of type."

Paragraph 2.1., amend to read:

- "2.1. The application for approval shall be submitted by the holder of the trade name or mark or by his duly accredited representative. **It shall specify, whether the device produces steady luminous intensity or whether the device produces variable luminous intensity.**

At the choice of ..."

Paragraph 2.2.2., amend to read:

- "2.2.2. a brief technical description stating, in particular, with the exception of lamps with non-replaceable light sources:
- the category or categories of filament lamp(s) prescribed; this filament lamp category shall be one of those contained in Regulation No. 37; and/or
  - the light source module specific identification code;
  - **for a rear fog lamp of category F2, a concise description of the variable intensity control."**

Paragraph 2.2.3., amend to read:

- "2.2.3. two samples; if the rear fog lamp cannot be mounted indiscriminately on either side of the vehicle, the two samples submitted may be identical and be suitable for mounting only on the right or only on the left side of the vehicle. **For a rear fog lamp of category F2, the application shall also be accompanied by the variable intensity control or a generator providing the same signal(s)."**

Paragraph 3.4., amend to read:

- "3.4. in the 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 **maximum** wattage."

Paragraph 3.5.3., amend to read:

"3.5.3. the marking of the rated voltage **or range of voltage** and rated **maximum** wattage."

Insert a new paragraph 3.6., to read:

"3.6. An electronic light source control gear or a variable intensity control being part of the lamp but not included into the lamp body shall bear the name of the manufacturer and its identification number."

Paragraph 4.3.2., amend to read:

"4.3.2. the additional symbol "F" followed by the figure "1" when the device produces steady luminous intensity and by the figure "2" when the device produces variable luminous intensity."

Insert a new paragraph 5.4., to read:

"5.4. In case of failure of the variable intensity control regulating the variable luminous intensity of a rear fog lamp of category F2 emitting more than the maximum value of category F1, requirements of steady luminous intensity of category F1 shall be fulfilled automatically."

Paragraph 6.3., amend to read:

"6.3. ... not exceed 300 cd for a device with steady luminous intensity (F1) and 840cd for a device with variable luminous intensity (F2)."

Insert a new paragraph 6.5., to read:

"6.5. The variable intensity control shall not generate signals which cause luminous intensities:

6.5.1. outside the range specified in Paragraphs 6.2. and 6.3. above and

6.5.2. exceeding the category F1 maximum specified in paragraph 6.3:  
- for systems depending only on daytime and night time conditions:  
under nighttime conditions  
- for other systems: under standard conditions 2/."

Insert a new footnote 2/, to read:

"2/ Good visibility (meteorological optical range MOR > 2,000 m defined according to WMO, Guide to Meteorological Instruments and Methods of Observation, Sixth Edition, ISBN: 92-63-16008-2, pp 1.9.1/1.9.11, Geneva 1996, Price €150.-) and clean lens."

Paragraphs 6.5. and 6.6. (former), renumber as paragraphs 6.6. and 6.7.

Paragraphs 7. to 7.2., amend to read:

**"7. TEST PROCEDURES**

- 7.1. All measurements, photometric and colorimetric, shall be made:**
- 7.1.1. In the 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,**
- 7.1.2. 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.**
- 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 3/ 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.**
- 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.**
- 7.2. 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.**
- 7.3. However in the case of a rear fog lamp of category F2 operated by a variable intensity control to obtain variable luminous intensity, photometric measurements shall be performed according to the applicant's description.**
- 7.4. The voltage to be applied to the lamp shall be noted in the communication for in Annex 1 of this Regulation.**
- 7.5. For any lamp except those equipped with filament lamps, 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 from the luminous intensity distribution after 30 minutes of operation by applying at each test point the ratio of luminous intensities measured at HV after one minute and after 30 minutes of operation**
- 7.6. The limits of the apparent surface in the direction of the reference axis of a light- signalling device shall be determined."**

Insert a new footnote 3/, to read:

**"3/ For the purpose of this Regulation "being part of the lamp" means to be physically included in the lamp body or to be external, separated or not, from the lamp body but supplied by the lamp manufacturer as part of the lamp system."**

Insert a new paragraph 8.3., to read:

**"8.3. In the case of light sources operated by an electronic control gear to obtain variable luminous intensity, the test shall be carried out under the conditions given at minimum 90 per cent of the higher luminous intensity."**

Paragraph 8.3. (former), renumber as paragraph 8.4.

Paragraph 9., amend to read:

**"9. COLOUR OF LIGHT EMITTED**

The colour of the light emitted inside the field of the light distribution grid defined at paragraph 3. of Annex 3, which shall be measured **under conditions described in paragraph 7. above**, must lie within the limits of the following trichromatic co-ordinates:

limit towards yellow:  $y = 0.335$   
limit towards purple:  $y = 0.980 - x$

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 rear fog lamps of category F2.**

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, in accordance with **relevant sub-paragraph of paragraph 7.1. of this Regulation.**"

Footnote \*/, should be deleted.

Annex 1,

Item 9., amend to read:

**"9. Number, category and kind of light source(s): .....  
Voltage and wattage: ....."**

**Application of an electronic light source control gear/variable intensity control:**  
**-being part of the lamp : yes/no 2/**  
**-being not part of the lamp : yes/no 2/**

**Input voltage(s) supplied by an electronic light source control gear/ variable intensity control: .....**

**Electronic light source control gear/variable intensity control manufacturer and identification number (when the light source control gear is part of the lamp but is not included into the lamp body): .....**

**Variable luminous intensity.....yes/no 2/"**

Footnote 3/, should be deleted.

Annex 2.

Figure 1, Model A, amend the marking "F-00" to read "**F1**".

Figure 1, Model A, the text, amend to read:

" ...a rear fog lamp **with steady luminous intensity** approved in the ..."

Figure 2, the inscriptions in Models B, C and D, replace "2a" by "**2b**", "R" by "**R2**" and "F" by "**F2**".

The note after Model D, amend to read:

".... and comprising:

A rear direction indicator lamp producing variable luminous intensity (category **2b**) approved in accordance with the 01 series of amendments to Regulation No. 6,

A red rear position (side) lamp producing variable luminous intensity (R2) approved in accordance with the 02 series of amendments to Regulation No. 7,

A rear fog lamp producing variable luminous intensity (F2) approved in accordance with Regulation No. 38 in its original version,

A reversing lamp (AR) approved in accordance with Regulation No. 23 in its original version,

A stop-lamp producing variable luminous intensity (S2) approved in accordance with the 02 series of amendments to Regulation No. 7."

Annex 4,

Paragraph 1.2., amend to read:

- "1.2. With respect to photometric performances, the conformity of mass-produced lamps shall not be contested if, when testing photometric performances of any lamp chosen at random **according to paragraph 7. of this Regulation**, respectively:"

Paragraph 1.3., amend to read:

- "1.3. The chromaticity coordinates shall be complied when **tested under conditions of paragraph 7. of this Regulation.**"

Annex 5,

Paragraph 1.2., amend to read:

- "1.2. With respect to photometric performances, the conformity of mass-produced lamps shall not be contested if, when testing photometric performances of any lamp chosen at random **according to paragraph 7. of this Regulation**, respectively:"

Paragraph 1.3., amend to read:

- "1.3. The chromaticity coordinates shall be complied when **tested under conditions of paragraph 7. of this Regulation.**"

**B. JUSTIFICATION**

For more than 30 years Regulations Nos. 6 and 7 have included photometric provisions regarding 2-level intensities for rear direction indicator lamps and stop lamps. These provisions were intended to define particular intensity limits for daytime and nighttime operation; it was assumed that their activation would be controlled by the conventional light switch. No further consideration was given to more detailed specifications, as such 2-level systems were practically never used in actual vehicle construction.

Technical development in light sources, sensors and electronic control gear now permits rear lighting systems having variable intensities with continuous adaptation to ambient light conditions, which would not be restricted to daytime and night time but would also cover transient situations, such as entering/leaving a tunnel, or variable daylight conditions, e.g. cloudy sky or bright sunshine. In addition, such systems would be able to adjust intensity in order to compensate for reduced light output due to deposition of dirt on the lens or to adverse weather, e.g. fog, rain, snow, spray, dust or smoke.

In order to enable type approval of these systems it is proposed to:

- (a) close the gap between existing maximum and minimum luminous intensity levels for 2-level systems;
- (b) introduce new categories for rear position lamps (in Regulation No. 7) and for rear fog lamps (in Regulation No. 38) with suitable limit values which would provide a

homogenous appearance of the respective rear lighting functions, i.e. position, stop, direction indicator and rear fog lamps.

The proposed maximum intensity levels correspond to levels already allowed on the road (for direction indicators and stop lamps), or are adjusted to achieve a uniform signal perception (for position and rear fog lamps) for all visibility conditions, taking into account the laboratory conditions for photometric approval tests. **For rear fog lamps C.I.E (see C.I.E-T.C4-19) light intensities to be used during day-time fog which are 100 times the intensities during night time fog.**

In Regulations Nos. 6, 7 and 38 provisions have been inserted to cover the case of failure of the electronic control gear regulating the continuously variable level of luminous intensity.

Proposed by France, the new paragraph 7. has been inserted into these Regulations as a result of discussions in the GTB Working Group Photometry not only to allow devices with variable intensities.

General provisions regarding the installation of light-signalling devices having variable luminous intensity have been inserted into Regulation No. 48 as a new paragraph 5.25. This would require simultaneous production of variable levels, except for centre high-mounted stop lamps, which - by design - are not reciprocally incorporated or grouped with other rear lamps grouped with other rear lamps.

The proposal has also been used to introduce editorial corrections and to adjust certain luminous intensity figures for consistency.

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