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Item 5(d) of the provisional agenda

Collective amendments—Regulations Nos. 48 and 123

Proposal for Supplement 1 to the 01 series of Amendments to Regulation No. 123 (Adaptive front-lighting systems)

Submitted by the experts from the Working Party “Brussels 1952”*

The text reproduced below was prepared by the expert from the Working Party “Brussels 1952” (GTB) in order to introduce specific provisions for Adaptive Driving Beam into Regulation No. 123. The modifications to the existing text of the Regulation are marked in bold for new or strikethrough for deleted characters.

* In accordance with the programme of work of the Inland Transport Committee for 2006–2010 (ECE/TRANS/166/Add.1, programme activity 02.4), the World Forum will develop, harmonize and update Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.

I. Proposal

Paragraph 1.9., amend to read:

“1.9. “Neutral state” means.... or of the main beam, if any, **in the maximum position of activation** is produced, and no AFS control signal applies;”

Insert a new paragraph 2.1.7., to read:

“**2.1.7. if the system is designed to provide an adaptive driving-beam;**”

Paragraph 2.2.2., amend to read:

“2.2.2. concise technical description of the system specifying:

(a) the lighting function(s)

....

(k) In the case of LED module(s)

(l) **In the case of adaptation of the driving-beam, which lighting units⁴ provide or contribute to the gradual adaptation of the driving-beam and of the sensor system along with the technical characteristics relevant to their operation;**

(m) **In the case of an automatic switching of the driving-beam, which lighting units⁴ provide or contribute to this driving-beam and of the sensor system along with the technical characteristics relevant to their operation;”**

Paragraph 5.7.2., amend to read:

“5.7.2. **except in the case of adaptation of the driving-beam**, either the passing beam or the driving beam shall always be obtained, without any possibility of remaining in an intermediate or undefined state; if this is not possible, such a state must be covered by the provisions according to paragraph 5.7.3. below;”

Insert new paragraphs 6.3.6. to 6.3.7.2., to read:

“**6.3.6. In the case of adaptation of the driving-beam function the system shall meet the requirements of the above paragraphs only when it is in the maximum position of activation.**

6.3.7. During adaptation, the driving-beam function shall meet the requirements for all the cases of Right-Hand and Left-Hand traffic specified in Part A of Table 7 in Annex 3 to this Regulation. These requirements shall be verified during the type approval testing in conjunction with a signal generator to be provided by the applicant. This signal generator shall reproduce the signals provided by the vehicle and cause the adaptation of the driving-beam and in particular shall represent the settings so that the photometric compliance can be verified.

6.3.7.1. If the driving-beam function meets the requirements in Part A of Table 7 in Annex 3 to this Regulation specified for line 1 to line 3 for oncoming and preceding vehicles (symmetrical beam) the relevant information shall be noticed in the communication document in Annex 1, paragraph 18.5.

6.3.7.2. If the requirements of paragraph 6.3.7. above can be met for Right-Hand traffic or Left-Hand traffic only, the relevant information shall be reported in the communication document in Annex 1, paragraph 18.5.”

Annex 1, insert a new paragraph 18.5., as follows:

“**18.5. The system is designed to provide an adaptation of the driving-beam for:**

Right-Hand and Left-Hand traffic : yes no

Right-Hand and Left-Hand traffic (symmetrical beam): yes no

Right-Hand traffic only : yes no

Left-Hand traffic only : yes no”

Annex 3, after table 6, insert a new table 7, as follows:

“**Table 7**

Requirements concerning the adaptation of the driving-beam according to paragraph 6.3.7 of this Regulation.

| Part A | Test Point | Position / deg. | | Max. Intensity **/ (cd) |
|--------|--|-----------------------|----------------|-------------------------------|
| | | Horizontal | Vertical | |
| | Line 1 Left Oncoming vehicle at 50 m in the case of Right-Hand Traffic | 4.8°L to 2°L | 0.57°Up | 625 |
| | Line 1 Right Oncoming vehicle at 50 m in the case of Left-Hand Traffic | 2°R to 4.8°R | 0.57°Up | 625 |
| | Line 2 Left Oncoming vehicle at 100 m in the case of Right-Hand Traffic | 2.4°L to 1°L | 0.3°Up | 1 750 |
| | Line 2 Right Oncoming vehicle at 100 m in the case of Left-Hand Traffic | 1°R to 2.4°R | 0.3°Up | 1 750 |
| | Line 3 Left Oncoming vehicle at 200 m in the case of Right-Hand Traffic | 1.2°L to 0.5°L | 0.15°Up | 5 450 |

| | | | | |
|--|----------------------------|----------------|---------------|---------------|
| Line 3 Right Oncoming vehicle at 200 m in the case of Left-Hand Traffic | 0.5°R to 1.2°R | 0.15°Up | 5 450 | |
| Line 4 Preceding vehicle at 50 m in the case of Right-Hand Traffic | 1.7°L to 1.0°R | 0.3°Up | 1 850 | |
| | >1.0° R to 1.7°R | | 2 500 | |
| Line 4 Preceding vehicle at 50 m in the case of Left-Hand Traffic | 1.7°R to 1.0°L | | 1 850 | |
| | >1.0° L to 1.7°L | | 2 500 | |
| Line 5 Preceding vehicle at 100 m in the case of Right-Hand Traffic | 0.9° L to 0.5°R | 0.15°Up | 5 300 | |
| | >0.5°R to 0.9°R | | 7 000 | |
| Line 5 Preceding vehicle at 100 m in the case of Left-Hand Traffic | 0.9° R to 0.5°L | | 5 300 | |
| | >0.5°L to 0.9°L | | 7 000 | |
| Line 6 Preceding vehicle at 200 m in the case of Left-Hand Traffic and Right-Hand Traffic | 0.45°L to 0.45°R | | 0.1°Up | 16 000 |

| <i>Part B</i> | <i>Test Point</i> | <i>Position /degrees *</i> | | <i>Min. Intensity **</i> |
|---------------|-------------------|----------------------------|-----------------|--------------------------|
| | | <i>Horizontal</i> | <i>Vertical</i> | <i>(cd)</i> |
| | 50R | 1.72 R | D 0.86 | 5 100 |
| | 50V | V | D 0.86 | 5 100 |
| | 50L | 3.43 L | D 0.86 | 2 550 |
| | 25LL | 16 L | D 1.72 | 1 180 |
| | 25RR | 11 R | D 1.72 | 1 180 |

* **Angular positions are indicated for right-hand traffic.**

** **The photometric requirements for each single measuring point (angular position) of this lighting function apply to half of the sum of the respective measured values from all lighting units of the system applied for this function.**

Each of the lines defined in part A of table 7, in conjunction with the test points as prescribed in part B of table 7 shall be measured individually corresponding to the signal provided by the signal generator.

In the case where the passing beam, which meets the requirements of paragraph 6.2., is continuously operated in conjunction with the adaptation of the driving beam, the photometric requirements in Part B of the table 7 shall not be applied.”

Annex 4, amend to read:

“TESTS FOR STABILITY OF PHOTOMETRIC PERFORMANCE OF
SYSTEMS IN OPERATION

TESTS ON COMPLETE SYSTEMS

Once the

For the purpose of this annex:

- (a) ...
- (b) ...
- (c) ...

The tests shall be carried out:

- (a) ...
- (b) ...
- (c) **In the case of a system providing an adaptation of the main-beam, the driving-beam shall be in the maximum position if activated.**

The measuring equipment

II. Justification

1. Systems capable of automatically adapting the main beam using sensors to detect the presence of other vehicles have been developed to assist the driver. These proposed amendments have been developed to introduce objective requirements that are not dedicated to specific technologies and can be applied to the type approval process of Regulation No. 123.
 2. A detailed review of the work undertaken by GTB in collaboration with GRE experts to develop suitable provisions for these new systems is available as Informal document GRE-64-01.
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