United Nations ECE/TRANS/WP.29/GRE/2025/8

# Economic and Social Council

Distr.: General
3 February 2025

Original: English

## Economic Commission for Europe

Inland Transport Committee

### World Forum for Harmonization of Vehicle Regulations

**Working Party on Lighting and Light-Signalling**

**Ninety-second session**
Geneva, 22–25 April 2025
Item 7 (b) of the provisional agenda
**Device UN Regulations:**
**UN Regulation No. 149 (Road Illumination Devices)**

# Proposal for a Supplement to the original series and the 01 series of amendments to UN Regulation No. 149

## Submitted by the experts from the International Automotive Lighting and Light-Signalling Expert Group *

The text reproduced below was prepared by the experts from the International Automotive Lighting and Light-Signalling Expert Group (GTB) with the aim to correct the numbering within paragraph 4.11. and to clarify the CoP provisions in Annex 8. The proposed modifications to the current text of the UN Regulations are marked in bold for new or strikethrough for deleted characters.

* In accordance with the programme of work of the Inland Transport Committee for 2025 as outlined in proposed programme budget for 2025 (A/79/6 (Sect. 20), table 20.6), the World Forum will develop, harmonize and update UN Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.

# I. Proposal

## A. Proposal for the original series of amendments to UN Regulation No. 149

*Paragraph 4.11. and related sub-paragraphs*, renumber to read:

"4.11. Testing of mechanical or electromechanical structures

~~4.11.1.~~ On headlamps or a system designed to provide alternately a driving-beam and a passing-beam, or a passing-beam and/or a driving-beam designed to become bend lighting, any mechanical, electromechanical or other device incorporated in the headlamp and lighting unit(s) for these purposes shall be so constructed that:

~~4.11.1.1.~~ **4.11.1.** The device is robust enough to withstand 50,000 operations under normal conditions of use. In order to verify compliance with this requirement, the Technical Service responsible for approval tests may:

(a) Require the applicant to supply the equipment necessary to perform the test;

(b) Forego the test if the headlamp presented by the applicant is accompanied by a test report, issued by a Technical Service responsible for approval tests for headlamps of the same construction (assembly), confirming compliance with this requirement.

… "

*Paragraph 5.3.1.4.4.2.*, amend to read:

"5.3.1.4.4.2. At least 3,100 cd shall be attained at point 50 V when the Class C passing-beam is activated, for systems producing passing-beam only or alternately producing passing-beam and driving-beam functions as described in paragraphs ~~4.11.1.~~ **4.11.** and 4.11.4. "

## B. Proposal for the 01 series of amendments to UN Regulation No. 149

*Paragraph 4.11. and related sub-paragraphs*, renumber to read:

"4.11. Testing of mechanical or electromechanical structures

~~4.11.1.~~ On headlamps or AFS designed to provide alternately a driving-beam and a passing-beam, or a passing-beam and/or a driving-beam designed to become bend lighting, any mechanical, electromechanical or other device incorporated in the headlamp and lighting unit(s) for these purposes shall be so constructed that:

~~4.11.1.1.~~ **4.11.1**. The device is robust enough to withstand 50,000 operations under normal conditions of use. In order to verify compliance with this requirement, the Technical Service responsible for approval tests may:

(a) Require the applicant to supply the equipment necessary to perform the test;

(b) Forego the test if the headlamp presented by the applicant is accompanied by a test report, issued by a Technical Service responsible for approval tests for headlamps of the same construction (assembly), confirming compliance with this requirement.

~~4.11.1.2~~. **4.11.2** Headlamps of classes C and V

In the case of failure, the luminous intensity above the line H-H shall not exceed the values of a passing-beam according to paragraph 5.2.; in addition, on headlamps designed to provide a passing and/or a driving-beam to become

a bend lighting, a minimum luminous intensity of at least $2.50 \cdot 10^3$ cd. shall be fulfilled in test point 25V (V-V line, 1.72°D).

~~4.11.1.3.~~ **4.11.2.1.** Either the principal passing-beam or the driving-beam shall always be obtained without any possibility of the mechanism stopping in between two positions.

~~4.11.2.~~ **4.11.3** Headlamps of classes AS, BS, CS and DS

~~4.11.2.1.~~ **4.11.3.1** Except for additional light source(s) and additional lighting unit(s) used to produce bend lighting, in the case of failure it must be possible to obtain automatically a passing-beam or a state with respect to the photometric conditions which yields values not exceeding $1.20 \cdot 10^3$ cd in Zone 1 and at least $2.40 \cdot 10^3$ cd at 0.86D-V by such means as e.g. switching off, dimming, aiming downwards, and/or functional substitution;

~~4.11.2.2.~~ **4.11.3.2.** Except for additional light source(s) and additional lighting unit(s) used to produce bend lighting, either the passing-beam or the driving-beam shall always be obtained without any possibility of the mechanism stopping in between the two positions.

~~4.11.3.~~ **4.11.4.** AFS

~~4.11.3.1.~~ **4.11.4.1.** 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 ~~4.11.3.2.~~ **4.11.4.2.**;

~~4.11.3.2.~~ **4.11.4.2.** In the case of failure, it must be possible to obtain automatically a passing-beam or a state with respect to the photometric conditions which yields values not exceeding $1.30 \cdot 10^3$ cd in the zone III b as defined in paragraph 5.3. and at least $3.40 \cdot 10^3$ cd in a point of "Zone $I_{max}$", by such means as e.g. switching off, dimming, aiming downwards, and/or functional substitution;

When performing the tests to verify compliance with these requirements, the Technical Service responsible for approval tests shall refer to the instructions supplied by the applicant.

~~4.11.4.~~ **4.11.5.** The user cannot, with ordinary tools, change the shape or position of the moving parts, or influence the switching device. ”

*Paragraph 3.1.2.2.3.1.*, amend to read:

“3.1.2.2.3.1. The safety concept as laid down in the documentation, which, to the satisfaction of the Technical Service responsible for type approval tests:

(a) Describe the measures designed into the system to ensure compliance with the provisions of paragraphs ~~4.11.1.2.~~ **4.11.2.** and 5.3.2.5.4.; and

(b) Indicates the instructions for their verification according to paragraph 5.3.2.6.; and/or

(c) Gives access to the relevant documents demonstrating the system’s performance concerning sufficient reliability and safe operation of the measures specified according to paragraph 3.1.2.2.3.1. a), e.g. FMEA ("Failure Mode and Effect Analysis"), FTA ("Fault Tree Analysis") or any similar process appropriate to system safety considerations. ”

## C. Proposal for the 01 series of amendments to UN Regulation No. 149

*Paragraph 6.1.*, amend to read:

“6.1. General

6.1.1. Road illumination devices approved under this Regulation shall be so manufactured as to conform to the type approved by meeting the requirements set forth in paragraphs 4.16. and 5 **and in Annex 8, paragraph 4**."

# II. Justification

1. Proposals A and B aim to correct the currently wrong numbering of paragraph 4.11. which could lead to misunderstandings. The current paragraph 4.11.1 contains the explanation of the testing of electromechanical structures which should also apply to the sub-paragraphs 4.11.2., 4.11.3. and 4.11.4. For this reason, such explanation is proposed to become part of the head paragraph 4.11.

2. The provisions for conformity of production for all devices (except cornering lamps) incorporating a lens of plastic material are described in Annex 8, paragraph 4, but the reference in the body text is missing. The proposal C is intended to correct this by adding a reference to Annex 8, paragraph 4, in the CoP provisions of paragraph 6.1.1.