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Working Party on Lighting and Light-Signalling (GRE)

(Fifty-third session, 4-8 October 2004,
agenda item 5.2.)

PROPOSAL FOR DRAFT AMENDMENTS TO REGULATION No. 7

(Front and rear position (side) lamps, stop lamps, and end-outline maker lamps)

Transmitted by the expert from Japan

Note: The text reproduced below was prepared by the expert from Japan, in order to include the use of an additional light source for night vision systems in the Regulation. This document is a package proposal of TRANS/WP.29/GRE/2004/31. Thus, it should be considered along with that document.

The modification to the existing text of the Regulation is marked in **bold** characters.

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

GE.04-22861

A. PROPOSAL

Insert new paragraphs 5.7. to 5.7.2., to read:

"5.7. One or more light source(s) according to Regulation No. 37 or non-replaceable light source(s), inside the front position lamp may be used for the purpose of generating infrared radiation.

5.7.1. In the case of non-replaceable light source(s) for generating infrared radiation; compliance with the following requirements shall be required.

To avoid thermal injury of the cornea and possible delayed effects upon the lens of the eye (cataractogenesis), ocular exposure to infrared radiation, E_{IR} , over the wavelength range 780 nm to 3000 nm, for times less than 1000 s, shall not exceed:

$$E_{IR} = \sum_{780}^{3000} E_{\lambda} \cdot \Delta\lambda \leq 18000 \cdot t^{-0,75} \quad \text{W}\cdot\text{m}^{-2} \quad (t \leq 1000 \text{ s})$$

For times greater than 1000 s the limit becomes:

$$E_{IR} = \sum_{780}^{3000} E_{\lambda} \cdot \Delta\lambda \leq 100 \quad \text{W}\cdot\text{m}^{-2} \quad (t > 1000 \text{ s})$$

where:

E_{λ} is the spectral irradiance in $\text{W}\cdot\text{m}^{-2}\cdot\text{nm}^{-1}$,

5.7.2. The photometric and colour requirements for the front position lamp shall be met with and without operating the light source(s)."

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B. JUSTIFICATION

At the fifty-second GRE session, Japan presented TRANS/WP.29/GRE/2004/7 for the possible installation of night vision systems inside the front position lamps. There were comments on this proposal from several delegations. On the basis of the comments, a revised document to amend Regulation No. 7 is proposed with the following reasons.

At the fifty-first GRE meeting, the expert from Germany proposed in documents TRANS/WP.29/GRE/2003/37 and TRANS/WP.29/GRE/2003/38 amendments to Regulations Nos. 98 and 112, so that an additional light source inside the headlamp could be allowed for night vision systems. Please see the justification of those documents, as follows;

"One of the results of recent road safety research projects is the introduction of night vision systems in the near future. Some solutions make it necessary to use additional infrared radiation producing lamps, which will be realized by a combination of halogen light sources and optical

filters. These lamps may produce also a certain amount of visible light. For practical reasons, it might be helpful to group or combine such "infrared devices" with headlamp."

The above proposals have been already approved in the one-hundred-and-thirty-second session of WP.29.

Now, the expert from Japan considers that one or more light source(s) could be installed inside the front position lamp besides the headlamp, with the same justification as the German proposal.

Namely, a small amount of visible red light can be hidden by the combination of visible white light produced by the front position lamp.

The requirements in paragraph 5.7.1. are quoted from paragraph 4.3.7. "Infrared radiation hazard exposure limits for the eye" of CIE S 009/E:2002 "Photobiological Safety of Lamps and Lamp Systems".

This is the reason for the amendment to Regulation No. 7 proposed above.

This document is closely bound up with TRANS/WP.29/GRE/2004/31 which is to add the requirements of the installation of the additional light sources for infrared radiation on the front position lamp in the Regulation No. 48. Thus, this document should be considered along with TRANS/WP.29/GRE/2004/31.
