



**Economic and Social
Council**

Distr.
GENERAL

ECE/TRANS/WP.29/GRE/2007/66
4 September 2007

ENGLISH ONLY

ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

World Forum for Harmonization of Vehicle Regulations

Working Party on Lighting and Light-Signalling

Fifty-eighth session

Geneva, 1-5 October 2007

Item 5(g) of the provisional agenda

COLLECTIVE AMENDMENTS

Regulations Nos. 6, 7 and 48

Proposal for draft Corrigendum 2 to Supplement 12 to
the 02 series of amendments Regulation No. 7

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

Transmitted by the expert from France

The text reproduced below was prepared by the expert from France proposing to align on the state-of-the art realisations the visibility angles requirements of the direction indicators. The modifications to the current text of the Regulation are marked in **bold** characters.

A. PROPOSAL

The title of the Regulation, amend to read:

"UNIFORM PROVISIONS CONCERNING THE APPROVAL OF FRONT AND **REAR POSITION LAMPS**, STOP-LAMPS AND END-OUTLINE MARKER LAMPS FOR POWER-DRIVEN VEHICLES AND THEIR TRAILERS"

Paragraph 6.2.4.1., amend to read:

"6.2.4.1. Throughout the fields defined in the diagrams in annex 1, the luminous intensity of the light emitted must be not less than 0.05 cd for front and rear **position lamps** and end-outline marker lamps, not less than 0.3 cd for stop-lamps;"

Annex 1, amend to read:

"Annex 1

FRONT AND REAR **POSITION LAMPS**, END-OUTLINE MARKER LAMPS
AND STOP-LAMPS: MINIMUM ANGLES REQUIRED FOR LIGHT DISTRIBUTION
IN SPACE OF THESE LAMPS 1/

(a) **Vertical light distribution of position lamps with a permissible mounting height x mm above the ground: 15° above the horizontal and α° below the horizontal so that:**

	$x \geq 850 \text{ mm:}$	$\alpha = 15^\circ$
if	$850 \geq x \geq 750 \text{ mm:}$	it may be reduced to $\alpha = 5^\circ + 0.1(x - 750)^\circ$
if	$x \leq 750 \text{ mm:}$	it may be reduced to $\alpha = 5^\circ$

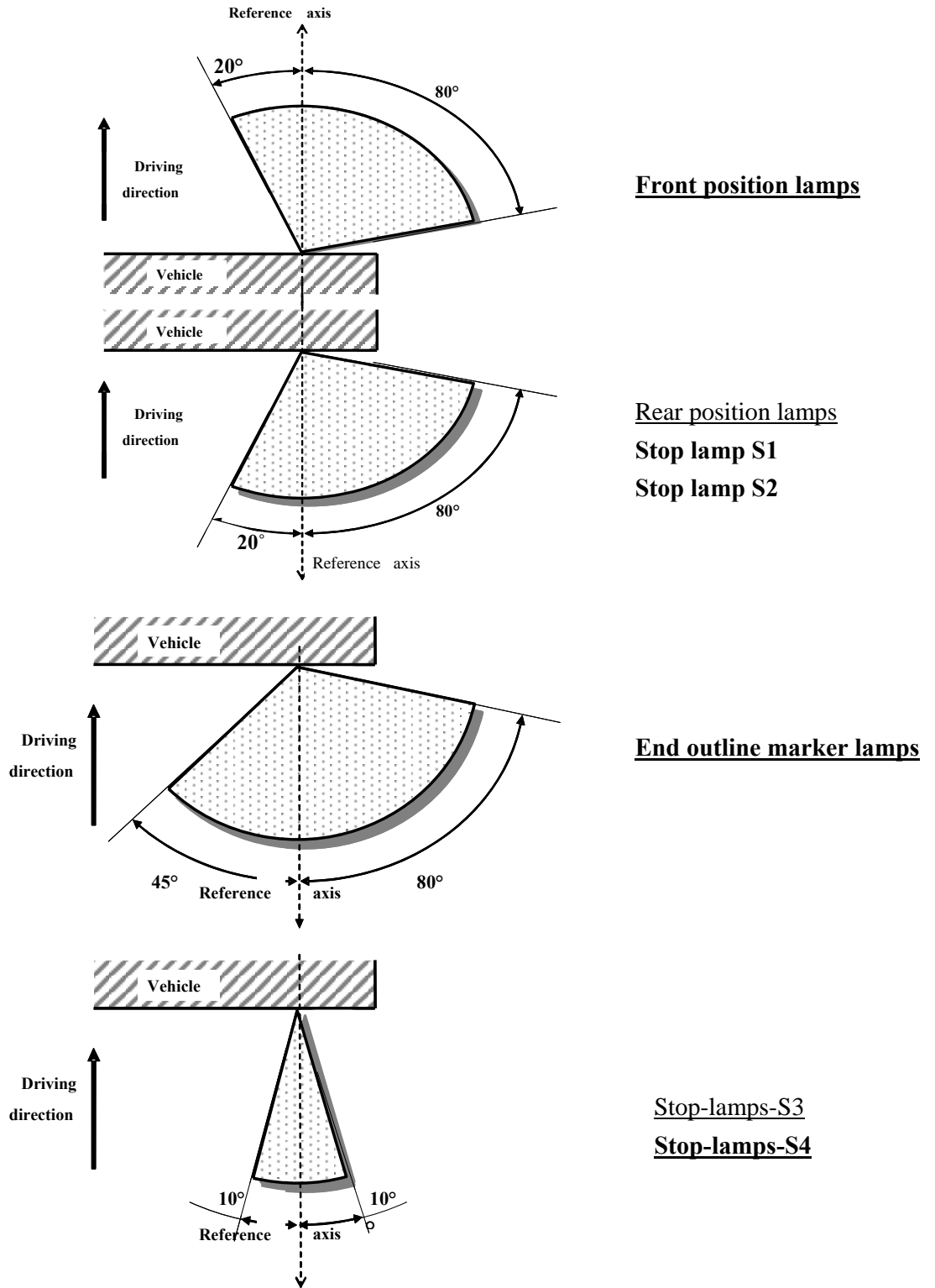
where x is the lower height of the lamp above the ground.

(b) **Vertical light distribution of end-outline marker lamps: 15° above the horizontal and 15° below the horizontal.**

(c) **Vertical visibility of category S3 or S4 stop lamps: 10° above and 5° below the horizontal;**

1/ The angles shown in these diagrams

(d) Horizontal visibility



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B. JUSTIFICATION

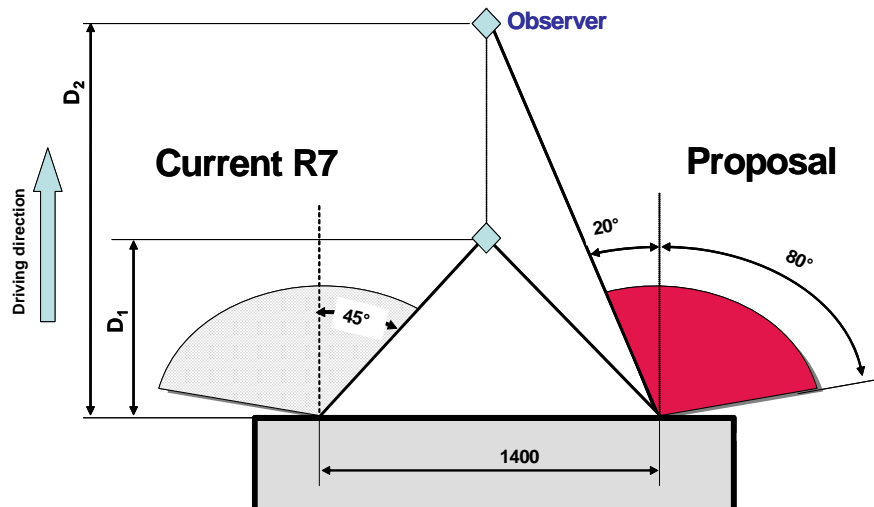
The current visibility requirements were written in the early 1970s. They were easily fulfilled in those times because the shapes of the vehicles were simple and rather boxy. Recent styling trends based on better aerodynamics and pedestrian protection lead to contoured shapes making the fulfilment of the 15 down and 45 inboard (15D-45inboard) visibility requirement impossible.

- (a) Reducing the interior visibility angle from 45° to 20° has a minimum impact on the distance of visibility of the vehicle observed along its longitudinal median plan. In the case of a vehicle with 1400 mm between the reference axis of the front position lamps, this angular reduction, as seen by an observer standing on the median longitudinal plan of the vehicle, leads to a minimal change of just 1.22 m:

With the current visibility angle, the lamp is visible at $D_1 = 1400 \times 0.5 \cotg 45^\circ$.

With the proposed visibility angle, the lamp is visible at $D_2 = 1400 \times 0.5 \cotg 20^\circ$.

The “danger” distance is increased by a modest $D_2 - D_1 = 1400 \times 0.5 (\cotg 20^\circ - \cotg 45^\circ) = 1220$ mm



This angular modification allows more pedestrian-friendly front ends. It helps improving the aerodynamics of the vehicle, thus reducing the fuel consumption.

- (b) The limit of 750 mm in eight is somewhat arbitrary and creates a threshold problem. With only one millimetre above the limit, the angle of visibility jumps from 5° under the horizontal to 15° . The formulae proposed in Annex 1 (a) create a smooth transition between these two angles and remove the threshold effect.
- (c) No modification is proposed for the visibility angles of the end-outline marker lamps.
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