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World Forum for Harmonization of Vehicle Regulations**Working Party on Lighting and Light-Signalling****Seventy-first session**

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Item 4(a) of the provisional agenda

**Regulation No. 48 – Proposal for amendments
to the 04, 05 and 06 series of amendments****Proposal for Supplement 14 to the 04 Series of amendments,
Supplement 7 to the 05 Series of amendments and
Supplement 5 to the 06 Series of amendments of Regulation
No. 48****Submitted by the expert from the International Automotive Lighting
and Light Signalling Expert Group***

The text reproduced below was prepared by the expert from the International Automotive Lighting and Light Signalling Expert Group (GTB) to clarify the definitions and requirements associated with the installation of "single lamps", "lamps marked D" and "Interdependent lamps". 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 2012–2016 (ECE/TRANS/224, para. 94 and ECE/TRANS/2012/12, 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.

1. Proposal

Paragraph 2.7.30.1., amend to read:

"2.7.30.1. *"Interdependent lamp marked "Y"*" means a device operating as part of an interdependent lamp system. Interdependent lamps operate together when activated, have separate apparent surfaces in the direction of the reference axis and separate lamp bodies, and may have separate light source(s)."

Insert a new Paragraph 2.7.32., to read:

"2.7.32. *"Lamps marked "D"*" means independent lamps, approved as separate devices in such a way that they are allowed to be used either independently or in an assembly of two lamps to be considered as a "single lamp"."

Paragraphs 2.16.1. and 2.16.2., amend to read:

"2.16.1. *"A single lamp"* means:

- (a) A device or part of a device having one lighting or light-signalling function, one or more light source(s) and one apparent surface in the direction of the reference axis, which may be a continuous surface or composed of two or more distinct parts; or
- (b) Any assembly of two ~~independent~~ lamps **marked "D"**, whether identical or not, having the same function; ~~or, both approved as type "D" lamp and installed so that:~~
 - ~~(i) The projection of their apparent surfaces in the direction of the reference axis occupies not less than 60 per cent of the smallest quadrilateral circumscribing the projections of the said apparent surfaces in the direction of the reference axis; or~~
 - ~~(ii) The distance between two adjacent/tangential distinct parts does not exceed 15 mm when measured perpendicularly to the reference axis; or~~
- (c) Any assembly of two independent retro-reflectors, whether identical or not, that have been approved separately; ~~or and are installed in such a way that:~~
 - ~~(i) The projection of their apparent surfaces in the direction of the reference axis occupies not less 60 per cent of the smallest quadrilateral circumscribing the projections of the said apparent surfaces in the direction of the reference axis; or~~
 - ~~(ii) The distance between two adjacent/tangential distinct parts does not exceed 15 mm when measured perpendicularly to the reference axis.~~

~~or~~
- (d) Any interdependent lamp system composed of two or three interdependent lamps **marked "Y" approved together and** providing the same function, ~~approved together as type "Y" and installed so that the distance between adjacent apparent surfaces in the direction of the reference axis does not exceed 75 mm when measured perpendicularly to the reference axis.~~

- 2.16.2. "Two lamps" or "an even number of lamps" **in the shape of a band or strip**, means **two lamps with** a single light emitting surface, ~~in the shape of a band or strip if such band or strip is placed symmetrically in relation to the median longitudinal plane of the vehicle, extends on both sides to within at least 0.4 m of the extreme outer edge of the vehicle, and is not less than 0.8 m long; the illumination of such surface shall be provided by not less than two light sources placed as close as possible to its ends; the light emitting surface may be constituted by a number of juxtaposed elements on condition that the projections of the several individual light emitting surfaces on a transverse plane occupy not less than 60 per cent of the area of the smallest rectangle circumscribing the projections of the said individual light emitting surfaces.~~ **providing such a band or strip is placed symmetrically in relation to the median longitudinal plane of the vehicle."**

Paragraph 5.7.2., amend to read:

- "5.7. Grouped, combined or reciprocally incorporated **or single lamps**"

Paragraph 5.7.2., amend to read:

- "5.7.2. ~~Where the apparent surface of a single lamp is composed of two or more distinct parts, it shall satisfy the following requirements:~~ **Single lamps**"

Paragraph 5.7.2.1., amend to read:

- "5.7.2.1. ~~Either the total area of the projection of the distinct parts on a plane tangent to the exterior surface of the outer lens and perpendicular to the reference axis shall occupy not less than 60 per cent of the smallest quadrilateral circumscribing the said projection, or the distance between two adjacent/tangential distinct parts shall not exceed 15 mm when measured perpendicularly to the reference axis. This requirement shall not apply to a retro reflector.~~

Single lamps as defined in paragraph 2.16.1. (a), composed of two or more distinct parts, shall be installed in such a way that:

- (a) **either the total area of the projection of the distinct parts on a plane tangent to the exterior surface of the outer lens and perpendicular to the reference axis shall occupy not less than 60 per cent of the smallest quadrilateral circumscribing the said projection; or**
- (b) **the minimum distance between the facing edges of two adjacent/tangential distinct parts shall not exceed 75 mm when measured perpendicularly to the reference axis.**

These requirements shall not apply to a single retro-reflector.

Paragraph 5.7.2.2., amend to read:

- "5.7.2.2. ~~Or, in the case of interdependent lamps, the distance between adjacent apparent surfaces in the direction of the reference axis does not exceed 75 mm when measured perpendicularly to the reference axis.~~

Single lamps as defined in paragraph 2.16.1. (b) or (c), composed of two lamps marked "D" or two independent retro reflectors, shall be installed in such a way that:

- (a) **either the projection of the apparent surfaces in the direction of the reference axis of the two lamps or retro reflectors occupies not**

less than 60 per cent of the smallest quadrilateral circumscribing the projections of the said apparent surfaces in the direction of the reference axis; or

- (b) the minimum distance between the facing edges of the apparent surfaces in the direction of the reference axis of two lamps or two independent retro reflectors does not exceed 75 mm when measured perpendicularly to the reference axis.

Insert a new Paragraph 5.7.2.3., to read:

"5.7.2.3. Single lamps as defined in paragraph 2.16.1(d). shall fulfil the requirements of paragraph 5.7.2.1.

Where two or more lamps and/or two or more separate apparent surfaces are included into the same lamp body and/or have a common outer lens these shall not be considered as an interdependent lamp system.

However, a lamp in the shape of a band or strip may be part of an interdependent lamp system."

Insert a new Paragraph 5.7.2.4., to read:

"5.7.2.4. Two lamps or an even number of lamps in the shape of a band or strip shall be placed symmetrically in relation to the median longitudinal plane of the vehicle, extending on both sides to within at least 0.4 m of the extreme outer edge of the vehicle, and are not less than 0.8 m long; the illumination of such a surface shall be provided by not less than two light sources placed as close as possible to the ends; the light-emitting surface may be constituted by a number of juxtaposed elements on condition that these individual light-emitting surfaces, when projected on a transverse plane fulfil the requirements of paragraph 5.7.2.1."

II. Justification

1. The definitions and requirements in UN Regulation No. 48, associated with the installation of "single lamps", "lamps marked D" and "Interdependent lamps", present problems due to their apparent lack of clarity. This lack of clarity is leading to type approval authorities granting approvals based upon various interpretations that are then being disputed by other type-approval authorities. Under these conditions, manufacturers and official test laboratories are faced with uncertainties when preparing for type approval.

2. The proposed amendments have been developed with the intention of clarifying the requirements and include changes to the definitions in section 2 of the Regulation to remove specific requirements that are moved into the paragraph 5.7.2.

3. Following an initial review of the proposal in ECE/TRANS/WP.29/GRE/2013/50 and the associated informal documents (GRE-70-27 and GRE-70-35) by GRE at its seventieth session, GTB undertook to prepare this revised proposal.

4. An explanation of the decision to specify the maximum separation of the apparent surfaces was requested during the discussion in the seventieth session of GRE. This was already given in the informal document GRE-62-02-Rev.1 containing supporting information for the original proposal to introduce Interdependent Lamps. Pages 12 and 13 from the document GRE-62-02-Rev.1 are reproduced below for easy reference.

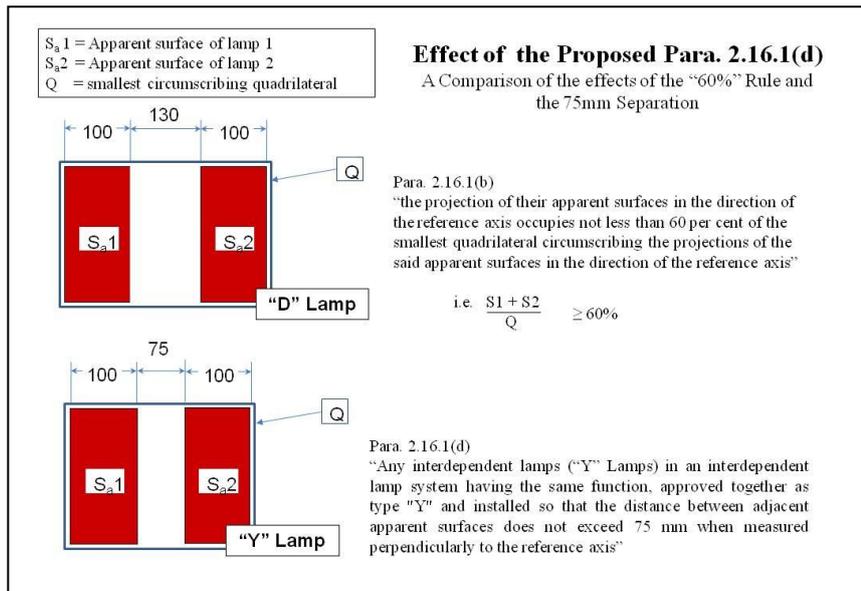
Decision to Specify Maximum Separation of the Apparent Surfaces

A study commissioned for the AFS Eureka project 1403²² concluded that 2 lamps having a separation of 150 mm are still close enough to be interpreted as one signal.

The 75mm maximum separation has been chosen to ensure a good lit appearance taking into account the two methods allowed to determine the apparent surface in Regulation 48 paragraph 2.10.

The effect of the 75mm separation limit is shown on the following diagram.

**/ Soardo, Rossi, Iacomussi, Recognition distance and appearance, IENGE, Milano, 1999*



GTB concluded that as there is no fundamental difference between the requirements for the lit appearance of lamps marked "D" and lamps marked "Y" the maximum value of 75 mm should be consistently applied to the single lamp.