

REGULATION No. 48  
(Installation of lighting and light-signalling devices)

Clarifications on installation requirements

Proposal for draft Supplement 5 to the 04 series of amendments to Regulation No. 48

Submitted by the expert from Germany \*/

**This draft consolidated document based on the documents:**

**TANS/WP.29/GRE/2009/69**

**the informal document from Clepa GRE62-12**

**the informal document from Austria GRE62-28**

A. PROPOSAL

6.21. CONSPICUITY MARKINGS

6.21.1. Presence

6.21.1.1. Prohibited: on vehicles of categories M 1 and O 1 .

6.21.1.2. Mandatory:

6.21.1.2.1. to the rear:

full contour marking on vehicles exceeding 2, 100 mm in width of the following categories:

- N 2 with a maximum mass exceeding 7.5 tonnes and N 3 (with the exception of chassis-cabs, incomplete vehicles and tractors for semi-trailers)
- O 3 and O 4

Paragraph 6.21.1.2.2., amend to read:

"6.21.1.2.2. to the side:

6.21.1.2.2.1. partial contour marking on vehicles exceeding 6,000 mm in length (including the drawbar for trailers) of the following categories:

- (a) N<sub>2</sub> with a maximum mass exceeding 7.5 tonnes and N<sub>3</sub> (with the exception of chassis-cabs incomplete vehicles and tractors for semi-trailers)
- (b) O<sub>3</sub> and O<sub>4</sub>."

Paragraph 6.21.1.2.3., amend to read:

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\*/ 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 performance of vehicles. The present document is submitted in conformity with that mandate.

"6.21.1.2.3. **A line marking may be installed instead of the mandatory contour marking if the shape, structure, design or operational requirements of the vehicle make it impossible to install the mandatory contour marking.**

**If the exterior surfaces of the bodywork are (partially) constituted of flexible material, this line marking shall be installed on (a) rigid part(s) of the vehicle conspicuity markings may be fitted on the flexible material."**

**Insert new paragraphs 6.21.1.2.4. to 6.21.1.2.4.3., to read:**

**"6.21.1.2.4. In cases where the manufacturer, after verification by the Technical Service, can prove to the satisfaction of the authority responsible for type approval that it is impossible (impractical), due to the operational requirements or due to the shape, structure, design of the vehicle (if essential by these operational requirements), to comply with the requirements contained in paragraphs 6.21.2. to 6.21.7.5., partial fulfilment of some of these requirements. is acceptable. This under the condition that those possible-to-meet requirements have been fully met and, the application of conspicuity markings under the partially-fulfilled requirements have been maximised on the vehicle structure, i.e. this may include fitting of additional brackets or plates where structure is available to ensure clear and uniform signalisation compatible with the objective of conspicuity,  
The necessary information shall be indicated in the test report and the communication form."**

**6.21.1.2.4.1.** Where rear marking plates conforming to the 01 series of amendments to Regulation No. 70 are installed these may be considered, at the discretion of the manufacturer, as part of the conspicuity marking to the rear, for the purposes of calculating the length of the conspicuity marking and its proximity to the side of the vehicle.

**6.21.1.2.4.2.** Notwithstanding the provisions of paragraph 6.17. above, retro-reflectors of category IV according to Regulation No. 3 may substitute part of the required conspicuity markings, their number and arrangement shall

- **comply with the provisions of paragraphs 6.21.4. to 6.21.5. below;**
- **in the case that paragraph 6.21.1.2.4. above applies, be such, that on average one retro-reflector is installed per meter, with a maximum distance of [1.50 m] between the adjacent retro-reflectors.**

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6.21.1.3. Optional:

6.21.1.3.1. on all other categories of vehicles, not otherwise specified in paragraphs 6.21.1.1. and 6.21.1.2. above, including the cab of tractor units for semi-trailers and the cab of chassis-cabs.

Paragraph 6.21.1.3.2., amend to read:

"6.21.1.3.2. partial or full contour marking may be applied instead of mandatory line markings, and full contour marking may be applied instead of mandatory partial contour marking, **provided that the requirements in paragraphs 6.21.3. to 6.21.7. are met.**"

6.21.2. Number

According to the presence.

Paragraph 6.21.3., amend to read:

"6.21.3. Arrangement

The conspicuity markings shall be as close as practicable to horizontal and vertical, compatible with the shape, structure, design and operational requirements of the vehicle; **if this is not possible, the full or partial contour markings, when fitted, shall follow as close as practicable the contour of the outer shape of the vehicle.**

**Furthermore, the conspicuity markings shall be spaced as evenly as possible over the horizontal dimensions of the vehicle such that the total length and/or width of the vehicle can be identified."**

6.21.4. Position

6.21.4.1. Width

6.21.4.1.1. The conspicuity marking shall be as close as practicable to the edge of the vehicle.

6.21.4.1.2. The cumulative horizontal length of the conspicuity marking elements, as mounted on the vehicle, shall equate to at least 80 per cent of the overall width of the vehicle, excluding any horizontal overlap of individual elements.

Paragraph 6.21.4.1.3., amend to read (the reference to footnote 16/ and footnote 16/, shall be deleted):

"6.21.4.1.3. However, if the manufacturer can prove to the satisfaction of the authority responsible for type approval that **the criteria as prescribed in paragraphs 6.21.1.2.3. and 6.21.1.2.4., are met**, the cumulative length may be reduced, **provided that the signalization is uniform (the material is evenly distributed) and clear to achieve a sufficient perception of the vehicle outline in width.**"

6.21.4.2. Length

- 6.21.4.2.1. The conspicuity marking shall be as close as practicable to the ends of the vehicle and reach to within 600 mm of each end of the vehicle (or cab in the case of tractor units for semi-trailers).
  - 6.21.4.2.1.1. for motor vehicles, each end of the vehicle, or in the case of tractors for semi-trailers the each end of the cab;
  - 6.21.4.2.1.2. for trailers, each end of the vehicle (excluding the drawbar).
- 6.21.4.2.2. The cumulative horizontal length of the conspicuity marking elements, as mounted on the vehicle, excluding any horizontal overlap of individual elements, shall equate to at least 80 per cent of:
  - 6.21.4.2.2.1. for motor vehicles, the length of the vehicle excluding the cab, or in the case of tractors for semi-trailers, if fitted, the length of the cab;
  - 6.21.4.2.2.2. for trailers, the length of the vehicle (excluding the drawbar).

Paragraph 6.21.4.2.3., amend to read (the reference to footnote 16/ and footnote 16/, shall be deleted):

"6.21.4.2.3. However, if the manufacturer can prove to the satisfaction of the authority responsible for type approval, that **the criteria as prescribed in paragraph 6.21.1.2.3. and 6.21.1.2.4., are met**, the cumulative length may be reduced, **provided that the signalization is uniform and clear to achieve a sufficient perception of the vehicle length.**"

6.21.4.3. Height

Paragraph 6.21.4.3.1. to 6.21.4.3.2., amend to read:

"6.21.4.3.1. Line markings and contour markings lower element(s) **when fitted**:

As low as practicable within the range:

Minimum: not less than 250 mm above the ground.

Maximum: not more than 1,500 mm above the ground.

However, a maximum mounting height of **2,500** mm may be accepted where **the shape, structure, design or operational conditions of the vehicle** prevent compliance with the maximum value of 1,500 mm or, if necessary, to fulfil the requirements of paragraphs 6.21.4.1.2., 6.21.4.1.3., 6.21.4.2.2. and 6.21.4.2.3., or the horizontal positioning of the line marking or the lower element(s) of the contour marking.

**The necessary information shall be indicated in the test report and the communication form.**"

6.21.4.3.2. Contour markings upper element(s) **when fitted**:

As high as practicable, but within 400 mm of the upper extremity of the vehicle."

Paragraphs 6.21.5. to 6.21.5.2.2., amend to read:

"6.21.5. Visibility

The conspicuity marking shall be considered visible, if at least 80 per cent of the illuminating surface of the **installed** marking is visible when viewed by an observer positioned at any point within the observation planes defined below.

6.21.5.1. for rear conspicuity markings (see Annex 11, Figure 1) the observation plane is perpendicular to the longitudinal axis of the vehicle situated **25 m** from the extreme end of the vehicle and bounded by:

6.21.5.1.1. in height, by two horizontal planes 1 m and 3.0 m respectively above the ground,

6.21.5.1.2. in width, by two vertical planes which form an angle of **4°** outwards from the vehicle's median longitudinal plane and which pass through the intersection of the vertical planes parallel to the vehicle's median longitudinal plane delimiting the vehicle's overall width, and the plane perpendicular to the longitudinal axis of the vehicle that delimits the end of the vehicle.

6.21.5.2. for side conspicuity markings (see Annex 11, figure 2) the observation plane is parallel to the longitudinal median plane of the vehicles situated **25 m** from the extreme outer edge of the vehicle and bounded by:

6.21.5.2.1. in height, by two horizontal planes **1.0 m** and **[1.5 m]** respectively above the ground,

6.21.5.2.2. in width, by two vertical planes which form an angle of **4°** outwards from a plane perpendicular to the vehicle's longitudinal axis and which pass through the intersection of the vertical planes perpendicular to the vehicle's longitudinal axis delimiting the vehicle's overall length and the extreme outer edge of the vehicle."

6.21.6. Orientation

Paragraphs 6.21.6.1. to 6.21.6.2., amend to read:

"6.21.6.1. To the side:

As close as practicable to being parallel to the median longitudinal plane of the vehicle, compatible with the shape, structure, design and operation requirements of the vehicle; **if this is not possible, it shall follow as close as practicable the contour of the outer shape of the vehicle.**

6.21.6.2. To the rear:

As close as practicable to being parallel to the transverse plane of the vehicle, compatible with the shape, structure, design and operation requirements of the vehicle, **if this is not possible, it shall follow as close as practicable the contour of the outer shape of the vehicle.**"

"6.21.7.1. Conspicuity markings shall be considered continuous if the distance between adjacent elements are as small as possible and do not exceed 50 per cent of the shortest adjacent element length. However, if the manufacturer can prove to the satisfaction of the authority responsible for type approval that it is impossible to respect the value of 50 per cent, the distance between adjacent elements may be larger than 50 per cent of the shortest adjacent element, and it shall be as small as possible and not exceed 1000 mm." (*see document TRANS/WP.29-2009-91*)...

6.21.7. Other requirements

6.21.7.1. Conspicuity markings shall be considered continuous if the distance between adjacent elements are as small as possible and do not exceed 50 per cent of the shortest adjacent element length.

Paragraph 6.21.7.2., amend to read:

"6.21.7.2. In the case of a partial contour marking, each upper corner shall be described by two lines at 90°, to each other and each at least 250 mm in length; **if this (90°) is not possible, the marking shall follow as close as practicable the contour of the outer shape of the vehicle.**"

6.21.7.3. The distance between the conspicuity marking fitted to the rear of a vehicle and each mandatory stop lamp should be greater than 200 mm.

Paragraph 6.21.7.4., amend to read:

6.21.7.4., Where rear marking plates conforming to Regulation No. 70 are installed paragraph 6.21.1.2.4.1. above shall apply.

6.21.7.5. The locations on the vehicle designated for conspicuity markings shall allow for the installation of markings of at least 60 mm in width.



Annex 11, amend to read:

Annex 11

VISIBILITY OF CONSPICUITY MARKINGS TO THE REAR AND  
SIDE OF A VEHICLE

(see paragraph 6.21.5. of this Regulation)

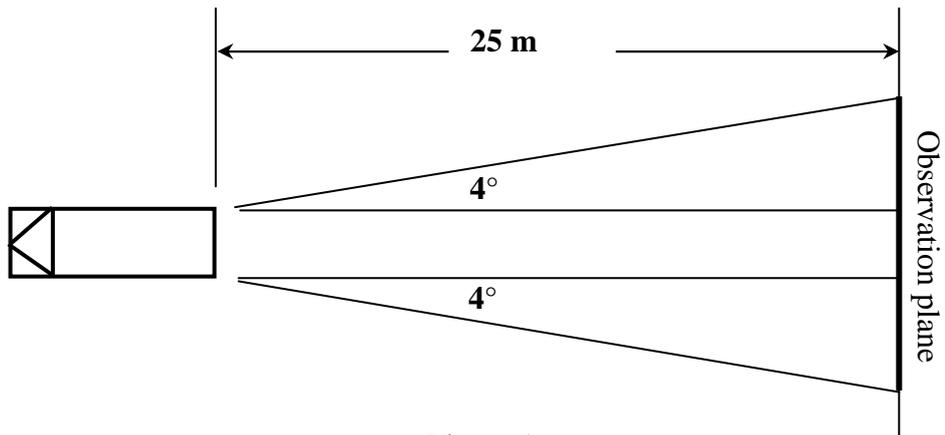


Figure 1

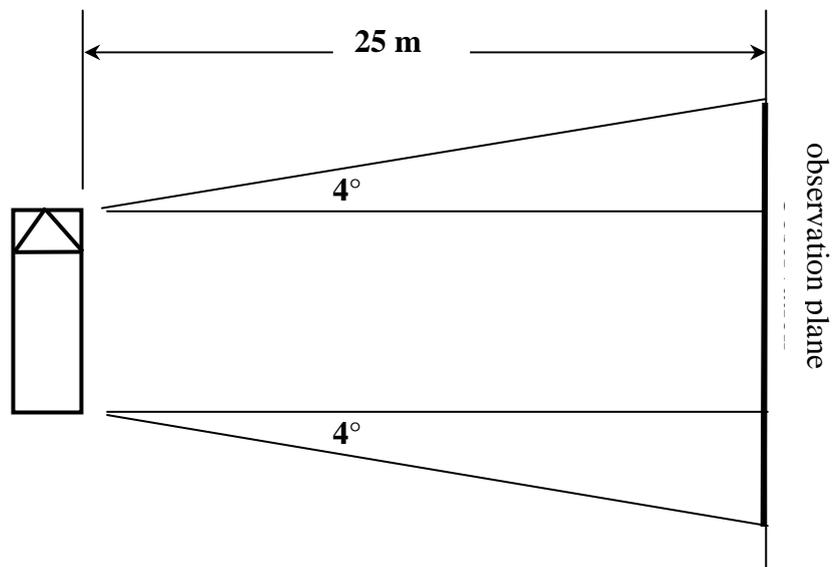


Figure 2

## B. JUSTIFICATION

### Background

The provisions concerning conspicuity markings, including:

- (a) Definitions in paragraph 2.7.17.
- (b) New paragraph 6.21., and
- (c) Transitional provisions

were introduced into Regulation No. 48 by the 03 series of amendments which entered into force on 10 October 2006. They are applicable to:

- (a) new vehicle type approval from 10 October 2007, and
- (b) as an option by Contracting Parties, to national/regional vehicle type approval from 10 October 2009.

Existing approvals cease to be valid on 10 October 2011.

At present, vehicles for which conspicuity marking is mandatory, either as full contour marking or partial contour marking, are, as a rule, first registered in the territory of Contracting Parties on the basis of national type approval. Mandatory compliance with Regulation No. 48 provisions regarding conspicuity marking is not required for the time being.

The directives of the European Community (EC) regarding Whole Vehicle Type Approval (WVTA) in their most recent version are intended to extend the application of the relevant technical requirements (including those on lighting and light-signalling in Regulation No. 48) to:

- (a) all categories of vehicles, and also
- (b) to single vehicle approval.

As from 10 July 2011, EU Member States will issue certificates of conformity for new vehicles regarding lighting installation only if the vehicle complies with Regulation No. 48 requirements. In addition, such requirements may also be introduced by other Contracting Parties.

Motor vehicles and trailers for the transport of goods are normally built with closed bodywork which permits the installation of conspicuity markings without problems. However, the increasing diversification of the road transport market requires more and more vehicles whose bodywork is designed to cover dedicated transport purposes. A few examples are:

- (a) Tanker vehicles
- (b) Vehicles/chassis for container transport
- (c) Vehicles with flexible bodywork (curtain-sider)
- (d) Vehicles for the transport of concrete
- (e) Vehicles for special loads, such as timber, cables, etc.
- (f) Large capacity tipper vehicles
- (g) Vehicles for the transport of substances with high temperature, e.g. bitumen
- (h) Low bed trailers

In such cases, it is often not possible to install conspicuity markings to the full extent of the requirements or in such a way that their performance is maintained during normal vehicle operation. Examples of typical constructions are given in the Annex below.

In order to ensure consistent application of the Regulation, it is considered necessary to amend the provisions of paragraph 6.21. in such a way that they cover as many special vehicle configurations as possible, taking into account the objectives of traffic safety and the practical constraints of vehicle design.

The proposal is intended to find:

- (a) a long-term solution;
- (b) a description of the exceptions which are clearly readable and resulting in uniform use (interpretations) of the specifications
- (c) a hierarchic process given by a stepwise description of the decision procedure to be followed by the authorities. In any case the results must be recorded in the communication form.

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