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STATUS OF DRAFT GLOBAL TECHNICAL REGULATION "LIGHTING AND LIGHT-SIGNALLING DEVICES – INSTALLATION" AND ALTERNATIVE PROVISIONS CONTAINED IN GLOBAL TECHNICAL REGULATIONS

Transmitted by the representative of Canada

Note: This document is a follow-up to TRANS/WP.29/2005/50. It presents alternative approaches regarding areas in the draft global technical regulation (gtr) "Lighting and light-signalling devices for road vehicles: Installation provisions for vehicles other than motorcycles" where consensus could not be reached on a single/common requirement. The purpose of this document is to seek AC.3 recommendation for the way to include diverse regional requirements, addressing the same subject, into the text of a gtr.

INTRODUCTION

GRE began its formal work on a harmonized UNECE Regulation No. 48H (Regulation No. 48H) in the year 1975. The objective was to evaluate UNECE Regulation No. 48 "Uniform provisions concerning the approval of vehicles with regard to the installation of lighting and light-signalling devices" vis-à-vis other leading world regulations on the same subject and create a regulation that could serve as an international formula for installation of road vehicle lighting and light-signalling devices.

On 25 August 2000, the 1998 Global Agreement came into force – its goal was "to establish a global process by which Contracting Parties from all regions of the world can jointly develop global technical regulations". With its work on the Regulation No. 48H, GRE was right on track regarding the purpose of the 1998 Agreement, since for many years GRE's experts were engaged in frank dialogues and have searched quite successfully for the best practice to deliver a high level of safety to the driving public. Several ideas brought to the GRE forum were discussed and implemented into the world of road vehicles construction (e.g. centre stop lamp, daytime running lamps, rear fog lamps, cornering lamps, bent lighting, distributive lighting, adaptive forward-illumination system, etc.).

In March 2002, during the one-hundred-and-twenty-sixth session of WP.29, the Executive Committee for the 1998 Agreement (AC.3) adopted the Programme of Work for the 1998 Global Agreement. This programme included development of a global technical regulation (gtr) regarding installation provisions for lighting and light-signalling devices for road vehicles other than motorcycles. It was a natural consequence that GRE would redefine the goal of its work on Regulation No. 48H, and use this draft document as a starting point for a new gtr "Lighting and light-signalling devices for road vehicles: Installation provisions for vehicles other than motorcycles".

The experience acquired by GRE during the work on the draft Regulation No. 48H was supported by a document submitted by the United States of America. This document showed differences between major world regulations on the subject, and suggested solutions for global harmony. The text of the Regulation No. 48H and the United States' document provided an excellent base for development of a gtr in the area of vehicle lighting and light-signalling.

PRESENT SITUATION

After several formal and informal meetings, GRE has developed a document that describes, in a clear and unambiguous language, most requirements for the installation of vehicle lighting and light-signalling devices.

Once the gtr is adopted, it would:

- provide a single source for information regarding international harmonization in installation of lighting and light-signalling devices;

- benefit all Contracting Parties as they will be able to present requirements regarding installation of lighting and light-signalling devices in a uniform, clear and unambiguous way;

- benefit the vehicle manufacturers who will obtain one clear source for the information on this subject.

However, GRE has encountered a number of topics where old and well-proven safety provisions of one world region have clashed with different, equally well-proven provisions of another region. In each case, lighting experts have given consideration to all pro and con arguments, and attempted to determine which provision was more effective and more cost beneficial. Regrettably, in a small number of cases, GRE has been unable to find a single solution that would satisfy all involved parties. In these cases, it would be unreasonable to expect some Contracting Parties to change their long-standing national requirements at a monetary cost to their industry and public without reasonable expectation of improved safety.

GRE is faced with the decision to continue the discussions on the remaining topics, which would delay global harmony on the majority of the agreed upon subjects of lighting and light-signalling devices installation, or adopt a gtr containing the successfully harmonized subjects and for the time being leave the Contracting Parties free choice in the areas where the harmonization work would continue.

Subjects, where one requirement could not be agreed and where final decision would have to be left at this time to the discretion of each Contracting Party, fall into two categories:

- category-one contains a broad range of requirements as they are formulated by individual Contracting Parties. This category depends on future agreement regarding characteristics of individual lighting and light-signalling devices. Category-one subjects include photometric and physical characteristics of the lighting or light-signalling devices chosen for a vehicle, headlamp-aiming procedures, geometric relation between lighting devices and direction indicators, etc. It is expected that solutions to these topics will come with development of further gtrs regarding individual devices as well as with better understanding of global road traffic situation. In future revisions of this gtr, reference to the Contracting Parties would be replaced by references to new gtrs addressing individual lighting or light-signalling devices.

- category-two is more defined and applies to topics where there are prescribed unique/specific features. Category-two subjects include: requirement, allowance or prohibition for presence of certain devices, choice of colour of emitted or reflected light, device switching regime, etc. For these topics, more discussion and research is required.

Proposed solution to category-one subjects:

In the absence of a gtr regulating performance of lighting and light-signalling devices, this gtr must empower Contracting Parties to maintain their present requirements regarding the first category of undecided subjects. The paragraphs with category-one subjects are listed and discussed in Appendix A.

Proposed solutions to category-two subjects:

In the case of category two subjects, GRE was able to narrow regional differences to two, clearly defined requirements. The question of a clear and unambiguous presentation of these diverse requirements presented another challenge that could be addressed in several ways.

Solution 1 (Basic installation requirements – maximum 3 items with options)

The main goal of the draft gtr is to describe placement of lighting and light-signalling devices on a vehicle; in other words it describes location of holes in which lighting and light-signalling devices are installed. It also describes electrical connections needed to provide a proper signal to activate these devices as well as geometric visibility of installed components. Since the choice of the characteristics of devices to be installed on a vehicle depends on the decision of individual Contracting Parties, the colour of lighting and light-signalling devices could also be left to the discretion of individual Contracting Parties. A future gtr regarding characteristics of individual devices would address the colour requirements. Consequently, the paragraph that sets requirements for colour of the light output could be removed from this gtr.

Furthermore, the presence of a device could also be left to the discretion of individual Contracting Parties. At the present time, there is no clear description of all classes/categories and sub-categories of vehicles. Therefore, until all Contracting Parties agree on appropriate road illumination devices for specific, well-defined vehicles, as well as proper light-signalling devices for them, the paragraph that states requirements for presence of devices could be removed from this gtr. The specific description of installation and electric connection of lighting and light-signalling devices contained in this gtr would apply only if a Contracting Party requires the presence of such devices on a vehicle.

When clear vehicle categories and sub-categories are defined in the Special Resolution No. 1 (S.R.1), the requirements for presence of devices would be revisited and possibly reintroduced into this gtr. In case of removal of requirements for presence of devices, Contracting Parties would be empowered to require, allow or prohibit installation of lighting and light-signalling devices on vehicles to be registered in their territories.

If requirements regarding colour and presence of the lighting and light-signalling devices would be removed, there are only three paragraphs for which Contracting Parties could not agree on a single requirement; these paragraphs are listed in Appendix B. For these paragraphs, Contracting Parties would have to indicate their choice of option.

Solution 2 (includes requirements for colour and presence of devices – 31 items with options)

The second solution would include requirements regarding the presence and colour of lighting and light-signalling devices. These two subjects contain 28 items where single requirements could not be agreed (colour-7 and presence-21).

Although, in all but five cases, it was possible to identify a common window allowing global harmony, it would be unfair to expect some Contracting Parties to adopt more restrictive requirements in place of long-standing, and well-serving national requirements at a pecuniary penalty to their industry and public without reasonable expectation of improved safety.

Instead of a single "common" requirement, all alternative requirements could be presented in three columns: "option (a)", "option (b)" and "option (c)-common". While options (a) and (b) would allow Contracting Parties to identify their preferred requirements, the "option (c)-common" column would display the common window, which would provide vehicle manufacturers with a tool for designing vehicles destined for the global marked. Such presentation would also allow Contracting Parties to identify desired choice of options in the "status document" proposed by Canada in TRANS/WP.29/2005/50.

All category-two subjects could be presented in the way proposed in Appendix C.

Solution 3 (modules including grouped options)

This solution is similar to solution 2; however, options would be grouped in "modules". Such approach could help in identification of choice of options by Contracting Parties. This would provide a clear picture for vehicle manufacturers designing product for different markets.

The drawback would be decreased flexibility for the Contracting Parties to change their choice of individual options, if a Contracting Party would decide to move closer to global harmony before conclusion of future harmonization work intended by GRE.

If solution-3 were recommended by AC.3 as the way to deal with options, the "modules" would have to be carefully defined by GRE experts.

CONCLUSION

Although the number of paragraphs where the final choice of requirements is left to the determination of each Contracting Party may seem to be overwhelming, it pales against the bulk of the agreed upon requirements in the draft gtr.

The proposed gtr contains a multitude of harmonized provisions regarding the installation of lamps and retro-reflectors on motor vehicles and trailers and providing a single source for information regarding international harmonization in installation of lighting and light-signalling devices. It contains requirements for the installation of all lighting and light-signalling devices regulated by all Contracting Parties; hence, Contracting Parties who did not regulate certain devices in their territories have now an opportunity to evaluate and adopt provisions for proper installation of such devices.

This gtr would benefit all Contracting Parties, as they will be able to state and subsequently enforce requirements regarding installation of lighting and light-signalling devices in a uniform, clear and unambiguous way. Moreover, it would benefit the vehicle manufacturers who will obtain one clear source for the requirements regarding installation of vehicle lighting and light-signalling devices.

Canada, as the author of this gtr, holds the opinion that leaving some unresolved issues in the form of references to national regulations, options or modules, allowing Contracting Parties to make their choices until additional gtrs in the lighting area are developed, will not diminish the value of the document. The references, options or modules would stay in the final document as a marker identifying for the Working Party (GRE) areas where further work towards world harmonization is required.

Canada asks for AC.3's approval of the approach taken with regard to the category-one subjects, for which Contracting Parties would maintain their current requirements until future gtr are developed. Furthermore, Canada seeks AC.3's guidance for the treatment of category-two subjects, which are unresolved at the present time.

AC.3's decision could also help other Working Parties that now or in the future may face the same challenge.

APPENDIX A

Category-one subjects

Para.	gtr text	Remarks
4.1.	Lighting and light-signalling devices listed in paragraph 5. shall conform and shall be marked in conformity with the applicable regulations of the Contracting Party.	This gtr addresses placement of lighting and light-signalling devices on road vehicles, the appearance (signature) of vehicles equipped with such devices as well as the logistics of the electrical wiring which allows these devices to function. At the present time, there are no gtr that set requirements for specific lighting or light-signalling devices. Therefore, this gtr refers to regulations of individual Contracting Parties to draw manufacturers' attention to specific needs regarding photometric output, physical/environmental characteristics and lens marking of lighting and light-signalling devices that are placed on road vehicles meant for a specific market. In the future, references to regulations of individual Contracting Parties will be replaced by references to gtr describing individual lighting or light-signalling devices.
4.2.	Installation of lamps not listed in paragraph 5. is prohibited except on special purpose vehicles, including but not limited to, police, medical and other emergency or public service vehicles. A Contracting Party may allow the fitting of such lamps on vehicles to be registered in its territory.	Paragraph 4.2. solidifies the scope of this gtr; it makes it "all-encompassing". To be a true Global Regulation, this gtr must provide a comprehensive source of information regarding installation of lighting and light-signalling devices. Installation of all devices required on vehicles in jurisdictions of all Contracting Parties must be described in this gtr; otherwise, if Contracting Parties would make additional devices mandatory in their jurisdictions, manufacturers would face trade barriers for movement of their products. However, Contracting Parties must be free to allow additional lighting and light-signalling devices to be installed on vehicles registered in their jurisdictions. Permission for Contracting Parties to determine an allowance for additional devices will remain in this gtr until there is true, all encompassing world harmony in motor vehicle design, special vehicle markings and traffic signalization.
5.2.3.2.	In height: H2 more than or equal to 500 mm; and	There are several industry and government studies suggesting that lowering the maximum passing beam height would reduce glare. Although, at the present time, there are no recorded crashes related to glare, Governments receive thousands of complaints; glare seems to affect drivers' behaviour, which may cause dangerous

Para.	gtr text	Remarks
	H1 less than or equal to 1,200 mm. In the case of motor vehicle equipped with passing beam headlamps with light sources having an objective luminous flux exceeding 2,000 lumens per vehicle side, H1 may be reduced based on the determination by each Contracting Party.	situations on the road (including recorded examples of road rage behaviour). Industry claims that lowering the mounting height of the passing beam will reduce the illuminated distance; however, this concern does not seem to affect the heavy-duty vehicle industry, which mounts headlamps on buses and trucks at heights corresponding with the suggested lower limits. Discussion on this subject will continue. In the mean time, Contracting Parties should be free to determine their own headlamp mounting height limits. It is understood that a cost benefits analysis would be necessary if a Contracting Party wishes to lower the mounting height specified in this gtr.
5.2.5.2.	Each vehicle shall be equipped with the means to ensure that the vertical inclination of the passing beam headlamp beam pattern can be adjusted in accordance with the instructions provided with the vehicle by the vehicle manufacturer without the use of special tools other than those provided with the vehicle by the vehicle manufacturer and according to the applicable regulations of the Contracting Party.	Because of differences among the Contracting Parties in defining of headlamp beam patterns and initial passing beam headlamp aim, GRE could not agree on one concise method for an initial aim of the passing beam and maintenance of such aim. A clear, comprehensive description of the initial passing beam headlamp aim and its subsequent maintenance must be developed. Work in this area will continue and a solution may be found after a gtr on harmonized beam pattern and general headlamp performance is developed.
5.2.8.3.	Based on the determination by each Contracting Party, the vertical aim of passing beam headlamps against initial position indicated by manufacturer may be required to be manually adjusted from the driver's seat or shall be automatically maintained [within +0.3/-0.8 degree] under all vehicle loading conditions. Moreover, in the case of the passing beam headlamps with light sources having combined objective luminous flux, which exceeds 2,000 lumens per vehicle side their vertical aim against initial position indicated by manufacturer may be required to be automatically maintained [within +0.3/-0.8 degree] under all vehicle loading conditions and to be installed only in conjunction with the installation of headlamp	This paragraph sets requirements for aim and aim maintenance of passing beam headlamps, as well as installation of headlamp cleaning devices. These provisions are related to the photometry and beam pattern of headlamps. Once a gtr defining the harmonized beam pattern of the passing beam headlamp is developed, paragraph 5.2.8.3. will be revisited. Cost benefit analysis for installation of automatic headlamp aimers and washers will be required at that time.

Para.	gtr text	Remarks
	cleaning device(s) specified by the Contracting Party.	
5.3.5.2.	Each vehicle fitted with the front fog lamps shall be equipped with the means to ensure that the vertical inclination of the front fog lamp beam pattern can be maintained in accordance with the instructions provided with the vehicle by the vehicle manufacturer without the use of special tools other than those provided with the vehicle by the vehicle manufacturer and according to the applicable regulations of the Contracting Party.	At the present time, there is no agreed method for initial aim and subsequent maintenance of proper aim of front fog lamps. Some Contracting Parties do not regulate front fog lamps and those that do regulate this device do not have any provisions for their aim. Similar to the passing beam headlamp, the work on the subject of front fog lamp aim will continue and a common solution will be found after a gtr on front fog lamp photometric performance is developed.
5.5.2.2.	If the distance between the edge of the apparent surface in the direction of the reference axis of the direction indicator lamp and that of the apparent surface in the direction of the reference axis of the passing-beam headlamp, daytime running lamp and/or the front fog lamp is less than 100 mm, the photometric output of the direction indicator must be increased according to the regulation of the Contracting Party.	There is a concern that a direction indicator signal may be overpowered/masked by other lighting or light-signalling devices mounted in close proximity. This concern was addressed by a requirement of higher intensity for the direction indicators. One approach was to create different types of direction indicators differentiated by their intensity related to the distance from the offending device; another approach sets just one step intensity increase. At this time, GRE could not agree which approach to choose. This item will be clarified once a gtr regarding direction indicators and their types is developed.
5.22.	Conspicuity treatment Based on a determination by each Contracting Party, specific conspicuity treatment (line marking, contour marking etc.) may be required.	At the present time, almost every Contracting Party requires or allows different conspicuity marking of large vehicles. The task of harmonizing all of them, during the sessions of GRE or the informal sessions developing this gtr, was too cumbersome. GRE decided to create a separate task force to work on the subject of conspicuity treatment. Results of this task force work could be incorporated into this gtr or a gtr on conspicuity treatment could be developed and subsequently installation of such harmonized conspicuity treatment could be discussed and added to this gtr.

APPENDIX B

Category-two subjects remaining after elimination of paragraphs 4.21. and 4.22.

Para.	gtr text	Remarks
5.4.4.1.	Based on a determination by each Contracting Party: (a) reversing lamps must be mounted so that the optical centre of at least one lamp is visible from any eye point elevation from at least 1,828 mm (6 ft) to 610 mm (2 ft) above the horizontal plane on which the vehicle is standing and from any position in the area rearward of a vertical plane perpendicular to the longitudinal axis of the vehicle 914 mm (3 ft) to the rear of the vehicle and extending 914 mm (3 ft) beyond each side of the vehicle; or (b) the following requirements for the angles of the geometric visibility must be met: Horizontal angles: If one lamp: β1 equal to 45° β2 equal to 45° If two lamps: β1 equal to 45° β2 equal to 30° Vertical angles: α1 equal to 15° α2 equal to 5°	Further discussion will continue regarding the intended functions of the reversing lamp (a. road illumination and b. signal to pedestrians that the vehicle is about to move backwards). Impact on pedestrian safety has to be evaluated as well as a cost benefit analysis before eliminating option (b).

Para.	gtr text	Remarks
5.9.7. and [5.10.7.]	<u>Tell-tale</u> Based on the determination by each Contracting Party a circuit-closed tell-tale is: (a) mandatory. This tell-tale shall be non-flashing and shall not be required if the instrument panel lighting can only be turned on simultaneously with the front position lamps; or (b) optional.	Electronic instrument panel displays may be illuminated at all times, independent of exterior lighting activation; Paragraphs 5.9.7. and 5.10.7. would require additional tell-tale where dashboard space is at a premium. According to North American regulations, controls and displays must be illuminated when the ignition and/or headlamps, not front or rear position lamps, are activated. The actual need for such a tell-tale is still under discussion at GRE. The safety justification/rationale for mandatory requirement should be provided.
5.19.6.2.	Based on a determination by each Contracting Party, means may be required such that: (a) the daytime running lamps (DRL) can be manually switched off for the remainder of the trip; or (b) the daytime running lamps can be manually switched off for 10 seconds or 100 m of vehicle travel.	GRE is reviewing several studies regarding DRL and its impact on vehicle and pedestrian safety. Masking of motorcycles in traffic is also a concern. The need for DRL (mandatory, optional or prohibited) has to be firmly established before the switching requirements can be settled.

APPENDIX C

Matrix presenting sub-paragraphs containing options in paragraphs 4.21. and 4.22.

4.21. Colour

Para.	Device	Option (a)	Option (b)	Option (c) Common	Remarks
4.21.5.	Rear direction indicator lamp and hazard warning signal	amber or red	amber only	amber	North American drivers are very familiar with red rear direction indicators. Forcing the industry to follow the regime of amber only could not be justified on safety improvement basis. Other drivers are accustomed to amber only rear direction indicator; for them introduction of red option could cause confusion leading to lowering safety levels. Extensive research would be required to provide solid cost benefit analysis to convince the industry to accept one colour solution. Resolution of this dispute would depend on the industry's decision.
4.21.9.	Front position lamp	white or amber	white only	white	In the case of front position lamps, the question of white only front position lamp may be resolved by adopting by all Contracting Parties the "white only" requirement. Some research may be required to provide a basis for cost benefit analysis.
4.21.13.	Front end-outline marker lamp	amber	white		Although this item seems to lack common ground, it is possible that all Contracting Parties may accept "white" end-outline marker. Time and further discussions among Contracting Parties demanding amber only end-outline marker are needed to eliminate this "option" paragraph. Some research may be required to provide a basis for cost benefit analysis.
4.21.16.	Rearmost side retro-reflector	red only	amber or red	red	Further discussion is needed among Contracting Parties demanding amber rear side retro-reflector.

Para.	Device	Option (a)	Option (b)	Option (c) Common	Remarks
4.21.17.	Rearmost side-marker lamp	red only	amber or red	red	Further discussion is needed among Contracting Parties demanding amber rear side marker lamp.
4.21.18.	Daytime running lamp	amber to white	white only	white	Although white only would be the common colour accepted by all Contracting Parties, the amber colour might be seen as preferred by Parties concerned with daytime masking of motorcycles sharing the road with other vehicles. To keep the motorcycles as distinct road users, amber colour for daytime running lamps for other vehicles may be desirable. More research is required.
4.21.19.	Front identification lamps	amber	white		At this time, this device is described as mandatory only by Contracting Parties, which demand it to be amber. Nevertheless, it is possible that all Contracting Parties may accept "white" identification lamps. Time and further discussions among Contracting Parties demanding amber only identification lamps are needed to eliminate this "option" paragraph. Some research may be required to provide a basis for cost benefit analysis.

4.22. Presence [M – mandatory; O – optional; P – prohibited]

Para.	Device	Vehicle category	Option (a)	Option (b)	Option (c) Common	Remarks
4.22.4.	reversing lamp	Trailers:	O	M	M	More research and cost benefit analysis will be needed to eliminate option (a).
4.22.5.	side direction indicator lamp and hazard warning	Motor vehicles	O	M	M	
4.22.6.	additional side direction indicator	Category 2 motor vehicles and trailers over 8,000 kg in gross vehicle mass; except truck-tractors	O	M	M	
4.22.7.2.	centre stop lamp: * optional on chassis-cabs and vehicles with open cargo space	Category 1-2 with structural width of less than 2,032 mm and gross vehicle mass of less than 4,550 kg	M	O	M	More discussion is needed to resolve the question of presence of centre stop lamp on a vehicle. Discussions could also involve clarification of S.R.1 with regard to proper identification of vehicle categories in relation to the gross vehicle mass and structural width. More research and cost benefit analysis will be needed to eliminate optional character of this device on some vehicle's categories.
		Category 2: vehicles with structural width of less than 2,032 mm and gross vehicle mass of less than 3,500 kg	M	M*	M	
		vehicles with structural width of more than 2,032 mm and gross vehicle mass of less than 3,500 kg	O	M*	M	
		vehicles with structural width of less than 2,032 mm and gross vehicle mass of less than 4,550 kg	M	O	M	

Para.	Device	Vehicle category	Option (a)	Option (b)	Option (c) Common	Remarks
4.22.9.	front position lamp	Trailers over 1,500 mm in structural width	O	M	M	More research and cost benefit analysis will be needed to eliminate option (a).
4.22.11.	rear fog lamp	All vehicles	O	M	M	
4.22.13.	end-outline marker lamp	Truck tractor - rear	O	M	M	
4.22.14.1.	rear retro-reflector - non-triangular	Trailers	M	O	M	Discussion on identification of vehicle category by light-signalling devices will continue.
4.22.14.2.	rear retro-reflector - triangular	Motor vehicles	O	P	P	
		Trailers	O	M	M	More research and cost benefit analysis will be needed to clearly define the presence requirement for this device.
4.22.15.	front retro-reflector	Motor vehicles with all concealable headlamps	O	M	M	
		Trailers	O	M	M	
4.22.16.	side retro-reflector	Vehicles with structural length less than 6,000 mm except truck tractors	M	O	M	
		Rear - truck tractors with structural length more than 6,000 mm	O	M	M	More research and cost benefit analysis will be needed before the option where the device is optional can be eliminated.
4.22.17.	side marker lamp	Vehicles with structural length less than 6,000 mm except truck tractors	M	O	M	
		Rear - truck tractors with structural length more than 6,000 mm	O	M	M	

Para.	Device	Vehicle category	Option (a)	Option (b)	Option (c) Common	Option (d)	Remarks
4.22.18.	daytime running lamp	Motor vehicles	M	O		P	Discussion on cost benefits of DRL, its impact on pedestrian safety and impact of DRL on conspicuity of motorcycles during daytime will continue. More research and cost benefit analysis will be needed to decide on the presence requirement of DRL.
4.22.19.	identification lamps	Vehicles over 2,032 mm in structural width	M	O		P	Discussion on identification of vehicle category by light-signalling devices will continue. More research and cost benefit analysis will be needed to clearly define the presence requirement for this device.

The other three category-two subjects together with "common" option

Para.	gtr text	Remarks
5.4.4.1.	Based on a determination by each Contracting Party: (a) reversing lamps must be mounted so that the optical centre of at least one lamp is visible from any eye point elevation from at least 1,828 mm (6 ft) to 610 mm (2 ft) above the horizontal plane on which the vehicle is standing and from any position in the area rearward of a vertical plane perpendicular to the longitudinal axis of the vehicle 914 mm (3 ft) to the rear of the vehicle and extending 914 mm (3 ft) beyond each side of the vehicle (b) the following requirements for the angles of the geometric visibility must be met: Horizontal angles: If one lamp: β1 equal to 45° β2 equal to 45° If two lamps: β1 equal to 45° β2 equal to 30° Vertical angles: α1 equal to 15° α2 equal to 5° or (c) common requirement is option (a)	Option (a) requires wider angles of geometric visibility and provides wider field of vision, hence is chosen as "common" option. Further discussion will continue regarding the intended functions of the reversing lamp (a. road illumination and b. signal to pedestrians that the vehicle is about to move backwards). Impact on pedestrian safety has to be evaluated as well as a cost benefit analysis before eliminating option (b).

Para.	gtr text	Remarks
5.9.7. and [5.10.7.]	Tell-tale Based on the determination by each Contracting Party a circuit-closed tell-tale is: (a) mandatory. This tell-tale shall be non-flashing and shall not be required if the instrument panel lighting can only be turned on simultaneously with the front position lamps; (b) optional; or (c) common requirement is option (a).	Since position lamp tell-tale is allowed under option (b), option (a) was chosen as "common" option. The actual need for such a tell-tale is still under discussion at GRE; the safety justification/rationale for mandatory requirement should be provided.
5.19.6.2.	Based on a determination by each Contracting Party, means may be required such that: (a) the daytime running lamps can be manually switched off for the remainder of the trip; (b) the daytime running lamps can be manually switched off for 10 seconds or 100 m of vehicle travel; or (c) there is no common solution to paragraph 5.19.6.2.	GRE is reviewing several studies regarding DRL and its impact on vehicle and pedestrian safety. Masking of motorcycles in traffic is also a concern. The need for DRL (mandatory, optional or prohibited) has to be firmly established before the switching requirements can be settled.

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