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**ECONOMIC COMMISSION FOR EUROPE**

**INLAND TRANSPORT COMMITTEE**

World Forum for Harmonization of Vehicle Regulations (WP.29)

(One-hundred-and-thirtieth session,  
24-27 June 2003, agenda item 7.1.)

**PROPOSAL FOR DRAFT AMENDMENTS TO THE CONSOLIDATED RESOLUTION  
ON THE CONSTRUCTION OF VEHICLES (R.E.3)**

Annex 17 (new) - **GUIDELINES FOR THE SUBMISSION AND EVALUATION  
OF PETITIONS CONCERNING INTERNATIONAL AUTOMOTIVE  
LIGHTING REGULATIONS**

Transmitted by the Working Party on Lighting and Light-Signalling (GRE)

Note: The text reproduced below was adopted by GRE at its forty-ninth session and is transmitted for consideration to WP.29. It is based on document TRANS/WP.29/GRE/2000/25, not amended (TRANS/WP.29/GRE/49, para. 86).

This document is a working document circulated for discussion and comments. The use of this document for other purposes is the entire responsibility of the user. Documents are also available via the INTERNET:

<http://www.unece.org/trans/main/welcwp29.htm>

## **PART 1**

### **GENERAL PROVISIONS**

#### **1. PURPOSE AND SCOPE**

These guidelines are intended to facilitate the processing by government, governmental organizations, and official consultory organizations to governments, the petitions which concern or may affect international automotive lighting regulations and which are submitted by individuals or private enterprises.

These guidelines describe the various elements necessary to carry out this objective process in a uniform manner, which is intended to ensure fair and equal treatment for all petitions regardless of who performs the processing.

#### **2. DEFINITIONS**

2.1. International automotive lighting regulations are the provisions covering the lighting and light-signalling devices for wheeled vehicles, equipment and parts which can be fitted and/or be used on wheeled vehicles, either included in or may have the possibility to be included in:

- (a) the Regulations annexed to the "Agreement Concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of These Prescriptions", done at Geneva on 20 March 1958 (formerly "Agreement Concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts");
- (b) the global technical regulations established under the "Agreement Concerning the Establishing of Global Technical Regulations for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles", done at Geneva on 25 June 1998;
- (c) the Convention on Road Traffic done in Vienna in 1968;
- (d) the Regulations and Directives of the European Community; and
- (e) other regional and national governments' and governmental organizations' motor vehicle lighting and light signalling regulations that may affect or have the possibility to affect, more than one country.

- 2.2. Petitions are requests addressing international automotive lighting regulations as set out in paragraph 2.1 above, which are intended either:
- (a) to amend one or more of their provisions, or
  - (b) to establish new provisions or regulations, or
  - (c) delete existing provisions or regulations.

### 3. PROCEDURES FOR SUBMISSION AND EVALUATION

- 3.1. Any petition according to paragraph 2.2. above, must be accompanied by documentation according to Part 2 Submitter's Guidelines For Information That Must Be Included In Petitions To Change International Automotive Lighting Regulations, of these guidelines, and must be addressed for preliminary screening to either:
- (a) the competent authority of a Government or regional governmental organization represented in the UN/ECE World Forum for Harmonization of Vehicle Regulations (WP.29), or
  - (b) to a competent regional non-governmental organization which is acknowledged by WP.29 for pre-screening such requests, such as the Working Party "Brussels 1952" (GTB).
- 3.2. After being accepted by a party of paragraph 3.1. above, the petition must be subjected to preliminary screening under the provisions according to Part 3 Evaluation Report and Recommendations on Petitions To Change International Automotive Lighting Regulations, of these guidelines.
- 3.3. The result of the preliminary screening must be communicated by the accepting party of paragraph 3.1. above to WP.29. It shall be accompanied by an Evaluation Report and by Recommendations according to Part 3 of these guidelines.
- 3.4. If accepted by WP.29, the request and its evaluation will be referred to the Working Party on Lighting and Light-Signalling (GRE) that will be responsible for:
- (a) detailed evaluation with respect to acceptance or denial;
  - (b) preparation of proposals regarding amendments to international automotive lighting regulations delegated to it by WP.29; and
  - (c) a report to WP.29.

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## **PART 2**

### **SUBMITTER'S GUIDELINES FOR INFORMATION THAT MUST BE INCLUDED IN PETITIONS TO CHANGE INTERNATIONAL AUTOMOTIVE LIGHTING REGULATIONS**

#### **1. SUMMARY OF PETITION**

- 1.1. Describe the safety implications and other benefits of the petition, and rank the reasons for amending existing regulations in their order of priority, with the highest priority listed first.
- 1.2. Describe the system, vehicle interface, equipment, function, and use.
- 1.3. Summarize the results of investigations and testing.
- 1.4. Identify the net impact of the petition on safety, and the details of that determination.
- 1.5. Identify the current and potential patent status of the petition.
- 1.6. Identify who has reviewed or investigated the petition prior to its submission, herein, including name, address, title, telephone, facsimile, e-mail of persons who have reviewed or investigated the petition prior to submission.
- 1.7. Identify all regulatory, industry, university and independent research centre authorities, which have been sent the petition for consideration or review.

#### **2. DETAILED DESCRIPTION OF THE INVENTION OR ADAPTATION**

##### **2.1. What Is The Purpose With Respect to Traffic Safety?**

- 2.1.1. Describe the field or the particular conditions of application.
- 2.1.2. What are the expected benefits, for example, with respect to crashes, injuries and fatalities; life cycle cost; freedom of design; environmental impacts and other?
- 2.1.3. What is the anticipated cost of the invention or adaptation per vehicle and how were these cost estimates developed?
- 2.1.4. Is the petition intended to be made mandatory or optional?

2.2. Detailed Constructional Description

- 2.2.1. What are the location and mounting requirements on the vehicle?
- 2.2.2. What are the system effects to the vehicle (e.g. wiring, electronics, mechanical, energy consumption, electromagnetic interference or other)?
- 2.2.3. What are the constructional and/or technological aspects?
- 2.2.4. What are the reliability and maintenance aspects over a vehicle's lifetime?
- 2.2.5. What are the technical feasibility and limitations?
- 2.2.6. What are the environmental impacts (e.g. increase of fuel consumption)?
- 2.2.7. What are the recycle-ability considerations and potential?
- 2.2.8. What are the cost aspects of the device and its installation?

2.3. Detailed Functional Description

- 2.3.1. Is it a new function, or an extension or a modification of an existing function?
- 2.3.2. How much does it's functionally differ from today's practice, e.g., shape, intensity, color, exposition time, vehicle location, occur more often or less frequent, sooner or later; or other?
- 2.3.3. What misuse and/or malfunction is possible and what is foreseen for the avoidance of possible misuse or malfunction?

2.4. Were Safety or Other Investigations Done with Regard to Functionality?

- 2.4.1. If yes, where and by whom?
- 2.4.2. Provide detailed description and conditions of field and/or other tests, simulations, laboratory tests, and etc.
- 2.4.3. Describe the estimated or proven traffic safety gains.
- 2.4.4. Describe risk considerations if the petition was applied in real traffic, e.g. compatibility with the signalling of other vehicles.
- 2.4.5. Describe particular results on functionality tolerances and possible failures.

2.4.6 Summarize results of each of the investigations mentioned under paragraph 2.3.

2.5. Provide Literature Survey That Was Used in Development of the Petition and Provide a Discussion of Conclusions Found.

3. ANALYSIS OF MERITS - IDENTIFY THE POSITIVE AND NEGATIVE EFFECTS OF THIS PETITION ON THE FOLLOWING:

(Note: complete the following subsections with your assessment of the positive and negative value of the petition relative to each item.)

3.1. Safety Factors:

3.1.1. Crash effects,

3.1.2. Fatality effects,

3.1.3. Injury effects,

3.1.4. Property damage effects,

3.1.5. Operational issues, and

3.1.6. Other.

3.2. Economic Factors:

3.2.1. Design flexibility,

3.2.2. Styling appearance,

3.2.3. Maintenance and serviceability,

3.2.4. Effect on small businesses, if applicable,

3.2.5. Cost effects,

3.2.6. Effect on periodic motor vehicle inspection, and

3.2.7. Other.

3.3. Environmental Factors:

- 3.3.1. Fuel consumption,
- 3.3.2. End of life recycling or reuse,
- 3.3.3. Waste disposal,
- 3.3.4. Use of materials or operations that may adversely affect health or the environment, and
- 3.3.5. Other.

3.4. Transitional Factors

- 3.4.1. Timing to implement,
- 3.4.2. Interim effects,
- 3.4.3. Public education, and
- 3.4.4. Changes in traffic regulations.

4. LIST OF REFERENCES AND ENCLOSURES TO PROVIDE:

- 4.1. Published research and test reports, with abstracts, describing the relationship of the report to the petition,
- 4.2. Extensive enclosures (drawings, data-sheets, photographs, and etc.),
- 4.3. List of related literature, and
- 4.4. Copies of relevant unofficial research and test reports.

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### PART 3

## EVALUATION REPORT AND RECOMMENDATIONS ON PETITIONS TO CHANGE INTERNATIONAL AUTOMOTIVE LIGHTING REGULATIONS

### 1. INTRODUCTION

#### 1.1. Scope

This document is an evaluation form for petitions to add, delete or change international automotive lighting regulations. It must be used by the pre-screening party.

- 1.2. The section numbers in this document correspond directly with the section numbers in the Application Requirements document. An executive summary as provided in Appendix 2 must be provided.

### 2. SUMMARY OF PETITION

- 2.1.1. Describe the safety implications and other benefits of the petition, and rank the reasons for amending existing Regulations in their order of priority, with the highest priority listed first.

Rank #1

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Rank #2

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Rank #3

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Rank #4

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Rank #5

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Comments:

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2.2. Describe the system, vehicle interface, equipment, function and use.

2.2.1. System:

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2.2.2. Vehicle interface:

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2.2.3. Equipment:

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2.2.4. Function:

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2.2.5. Use:

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2.3. Summarize the results of investigations and testing:

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2.4. Identify the net impact of the petition on safety, and the details of that determination:

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2.5. Identify the current and potential patent status of the petition:

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2.6. Identify who has reviewed or investigated the petition prior to its submission, herein, including name, address, title, telephone, facsimile, e-mail of persons who have reviewed or investigated the petition prior to submission:

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2.7. Identify all regulatory, industry, university and independent research centre authorities who have been sent the petition for consideration or review:

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3. DETAILED DESCRIPTION OF THE INVENTION OR ADAPTATION  
(Have the requirements of Part 2, Submitter's Guidelines For Information That Must Be Included In Petitions To Change International Automotive Lighting Regulations, Section 2 been met? Check appropriate boxes.)

	Incomplete	Complete	Satisfactory
3.1. Purpose			
3.2. Construction			
3.3. Functional			
3.4. Investigations			
3.5. Literature survey			

4. DETAILED ANALYSIS OF MERITS/DEMERITS  
(see Appendix 1; bring forward the summary for each row below):

FACTOR		+2	+1	0	-1	-2
4.1.	SAFETY FACTOR					
4.1.1.	Crash effects					
4.1.2.	Fatality effects					
4.1.3.	Injury effects					
4.1.4.	Property damage effects					
4.1.5.	Operational issues					
4.1.6.	Other					
4.2.	ECONOMIC FACTOR					
4.2.1.	Design flexibility					
4.2.2.	Styling appearance					
4.2.3.	Maintenance and serviceability					
4.2.4.	Effect on small businesses					
4.2.5.	Cost effects					
4.2.6.	Effect on periodic motor vehicle inspection					
4.2.7.	Other					
4.3.	ENVIRONMENTAL FACTOR					
4.3.1.	Fuel consumption					
4.3.2.	End of life recycling or reuse					
4.3.3.	Waste disposal					
4.3.4.	Materials or operations that may adversely affect health or the environment					
4.3.5.	Other					

FACTOR		+2	+1	0	-1	-2
4.4.	TRANSITIONAL FACTOR					
4.4.1.	Timing to implement					
4.4.2.	Interim effects					
4.4.3.	Public education					
4.4.4.	Changes in traffic regulations					
SUMMARY OF TABLE						

5. REFERENCES AND ENCLOSURES PROVIDED

		Enclosed	Complete	Satisfactory
5.1.	Published research and test reports, with abstracts, describing the relationship of the report to the petition			
5.2.	Extensive enclosures (drawings, data sheets, photographs, and etc.)			
5.3.	List of related literature			
5.4.	Copies of relevant unofficial research and test reports			

6. Summary of findings and any other pertinent information:

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7. Name, signature, title, address, telephone, facsimile, e-mail, of the competent authority(s) review and approval representative(s) with signature date, and the name, seal, and address of the reviewing competent authority:

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**Appendix 1**

GUIDANCE TO REVIEWER OF ISSUES TO SEEK AND STUDY  
AND WEIGHTING FACTORS TO CONSIDER (see Part 3, para. 4.)

ISSUE	WEIGHTING <u>1/</u>				
4.1. Safety Factors					
4.1.1. Crash effects					
- frequency (decreased frequency is positive)					
- severity (decreased severity is positive)					
- societal costs (decreased cost is positive)					
4.1.2. Fatality effects					
- frequency (decreased frequency is positive)					
- severity (decreased severity is positive)					
- societal costs (decreased cost is positive)					
4.1.3. Injury effects					
- frequency (decreased frequency is positive)					
- severity (decreased severity is positive)					
- societal costs (decreased cost is positive)					
4.1.4. Property damage effects					
- frequency (decreased frequency is positive)					
- severity (decreased severity is positive)					
- societal costs (decreased cost is positive)					
4.1.5. Operational issues (reduction in these measurables is positive)					
- misinterpretation of the new signal or existing signals					
- confusion with other signals					
- irritation or distraction by the new signal					
- interference with other onboard vehicle systems					
- interference with systems on other vehicles					
- interference with non-vehicle systems					
- redundancy aspects in case of failure					
- misuse					
- malfunction					
- constant risk behaviour					
- system reaction time					
- response time of other road users					

ISSUE	WEIGHTING <u>1/</u>				
4.1.6. Other (any other potential safety consequences)					
4.2. Economic Factors					
4.2.1. Design flexibility					
- [additional devices]					
- harmonization					
- ease if retrofit					
- ability to incorporate into body panels					
- high tech					
- advanced technology					
4.2.2. Styling appearance					
- blends with body					
- sharp edges					
- size					
- novelty					
- uniqueness					
- appealing					
- innovative					
- friendly					
4.2.3. Maintenance and serviceability					
- low DPM (defects per million)					
- life of operation					
- ease of repair					
- availability					
- accessibility					
- sturdiness					
- durability					
- reliability					
- ruggedness					

ISSUE		WEIGHTING <u>1/</u>				
4.2.4.	Effect on small businesses (if applicable)					
	- is there an effect					
	- barrier to competitiveness					
	- exposure to grey market					
4.2.5.	Cost effects					
	- replacement cost					
	- unit cost					
	- societal costs					
	- cost of operation					
	- cost of disposal					
	- ease of transfer to emerging market					
4.2.6.	Effect on periodic motor vehicle inspection					
	- ease of inspection					
	- training					
	- bribe value					
	- effect on current inspection standards					
	- measurable					
4.2.7.	Other					
4.3.	Environmental Factors					
4.3.1.	Fuel consumption					
	- CAFE (Corporate Average Fuel Economy) effect					
	- mass effect					
	- multi-fuel engines					
4.3.2.	End of life recycling or reuse					
	- ease of disassembly					
	- post-consumer product market					
	- second generation use					
	- thermodynamics					
	- degradability properties					
	- thermo recovery					

ISSUE	WEIGHTING <u>1/</u>				
4.3.3. Waste disposal					
- heavy metal recovery					
- landfill effects					
- incineration compatibility					
- ozone layer					
- greenhouse effects					
- effects on endangered species					
4.3.4. Does the proposed device include materials or operations that may adversely affect health or the environment?					
- heavy metals					
- radioactive					
- high voltage exposure					
- high temp exposure					
- UV (ultra-violet) radiation exposure					
- combustibility					
- hazardous vapours					
- flash point					
4.3.5. Other					
- noise effects (throughout the full electromagnetic spectrum)					
- CO <sub>2</sub> emissions					
4.4. Transitional Factors					
4.4.1. Timing to implement					
- lead time					
- new equipment					
- regulatory compatibility					
- regulatory change process					
- effects on state laws					
- conflicts with law					
- educational effects					
- government approval time					

ISSUE	WEIGHTING <sup>1/</sup>				
4.4.2. Interim effects					
- nuisance					
- information overload					
- psychological					
- phase in confusion					
- masking effects					
- startle/attraction					
- novelty effect					
- conspicuity					
4.4.3. Public education					
- training for new processes					
4.4.4. Changes in traffic regulations					
- magnitude of change					
- compatibility					
- destroying paradigms					
- comfort					
- fatigue reduction					
- change in road codes					

<sup>1/</sup> Note: +2 = very positive,

+1 = positive,

0 = neutral,

-1 = negative,

-2 = very negative.



**Appendix 2**

EXECUTIVE SUMMARY OF THE EVALUATION REPORT AND RECOMMENDATIONS

1. NATURE OF SUBMISSION (check one or more of the following)

- amendment to existing ECE Regulation
- new ECE Regulation
- withdrawal of an existing ECE Regulation
- mandatory provision(s)
- optional provision(s)
- need for transitional provisions

Category of vehicles addressed (list here)

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Name and Address of the Applicant (list here)

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Name and address of Reviewing Competent Authority and its affiliation with the UNECE World Forum for Harmonization of Vehicle Regulations (WP.29)

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1.1. Recommendation of the Reviewing Body:

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1.2. Further processing necessary:

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1.3. Denial:

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1.4. Need for draft specification:

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1.5. Need for further investigation:

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1.6. Time schedule for introduction:

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### Explanatory Note

1. Acting on a mandate given by WP.29 at its ninety-second session in October 1990 (TRANS/SC1/WP29/287, para. 82), GRE initiated discussion on proposals for an “advanced brake light system” at its twenty-sixth session in May 1991 (TRANS/SC1/WP29/GRE/26, paras. 38 and 39). Having considered the various technical solutions for an Advanced Brake Warning System (ABWS) and their eventual safety implications, GRE came to the conclusion that a more systematic approach to this issue would be necessary. At its thirty-seventh session in November 1996 (TRANS/WP.29/GRE/37, para. 58) GRE invited GTB to consider any possibility for establishing general guidelines for evaluating acceptability and eventual benefits of various ABWS. Subsequent discussions in GRE and in the Working Party "Brussels 1952" (GTB), as well as the inputs from several national delegations showed that it would be suitable to extend the scope of this task beyond the mere evaluation of ABWS. It was for this reason that GRE at its thirty-ninth session in October 1997 described the mandate to GTB as follows (TRANS/WP.29(GRE/39, para. 58):

“58. Define criteria (performance requirements) and characteristics of known (see TRANS/SC1/WP29/GRE/R.173 and Add.1) and future proposals for additional lighting and light-signalling devices for motor vehicles and their trailers which have to be respected before the merit of these proposals and the justification of their further study for inclusion in ECE Regulations or in international harmonisation provisions is recognised.”

2. The work in GTB was carried out in close cooperation between the experts from Europe and from the United States of America where the competent authority had published a statement of policy on new signal lighting ideas in November 1998. One important task was a detailed analysis of parameters which would be liable to influence the practical safety aspects of new devices or systems after their introduction. Some of these questions are set out below.
  - What is the specific risk situation which the new device or system is intended to cover?
  - What is the objective with regard to enhancing safety?
  - Are there any data on expected safety benefits?
  - Are there results of investigations carried out by independent institutions
    - experimental tests under controlled conditions?
    - field tests under actual traffic conditions?
  - How would the new system fit into the pattern of existing mandatory or optional lighting systems?
  - What is the estimated probability of correct interpretation of the signal by road users?

- What is the probability of negative effects such as
    - misinterpretation of the signal?
    - confusion with other signals?
    - irritation or distraction?
    - proliferation of similar or identical signals?
  - How would the system perform in the range of vehicle operating conditions and over the lifetime of the vehicle?
  - If the system is intended to improve lighting and/or light-signalling under particular conditions, e.g. adverse weather, what are the precautions against misuse?
  - What would be the expected vehicle lifetime cost for the vehicle owner?
3. The result of the work in GTB is presented in the form of guidelines which are structured in 3 parts:
- **Part 1 “General Provisions”** includes the purpose and scope, the definitions and the description of the procedures for submission and evaluation.
  - **Part 2 “Submitter’s Guidelines”** includes the instructions to be followed by a person or private enterprise who intends to submit a petition which is liable to change international automotive lighting regulations.
  - **Part 3 “Evaluation Report and Recommendations”** is addressed to the party which is responsible for the preliminary screening of such a petition.
4. It should be noted that:
- the guidelines and in particular parts 2 and 3 have been drawn up to cover all possible parameters in relation to technical and societal effects;
  - governments or international government organisations can use the guidelines at their discretion, by applying the entire document or certain sections suitable to the case under consideration.
-