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## Item 0.4

# VCG Task force

## Introduction

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**GTB**

*The International Automotive Lighting  
and Light Signalling Expert Group*

*Groupe de Travail "Bruxelles 1952"*

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# The History

- Since 2007, the French Delegation at GTB, had proposed changes to the front lighting regulations R112.
  - Target of the proposal: to allow the use of the voltage control gear as a part of the lighting device in R112.
- Discussions occurred during several GTB working group meetings until October 2009.
- During the 63<sup>rd</sup> GRE in March 2011, France submitted a proposal to amend R48 (GRE-63-09: new definition of the objective luminous flux) and R112 (GRE-63-16: possibility of using a VCG).
- GRE decided to wait for a new proposal from GTB.

# Creation of the VCG Task Force.

- During the GTB Session in May 2010, 2 steps were defined:
  - 1) to allow the use of a Voltage Control gear in R112 in the case of the use of a H9 bulb for dual functions applications (e.g. Low beam / High beam) including dual test voltages and dual reference luminous fluxes.
  - 2) to establish the VCG Task Force to study how to introduce the voltage control gear in a more general way.

# STEP 1: H9 with dual test voltages.

- Scope: the introduction of the H9 bulb with dual test voltage and dual reference luminous fluxes for dual functions applications.
- A proposal of 3 associated amendments was presented to GRE during the 64<sup>th</sup> session.
  - 2010-51 (Amendment of R37) , 2010-52 (Amendment of R48) & GRE-64-17 (Amendment of R112),
  - To allow the use of H9 bulb (with dual reference luminous flux) with a Voltage control gear.
  - It was adopted during the 64th session of GRE.

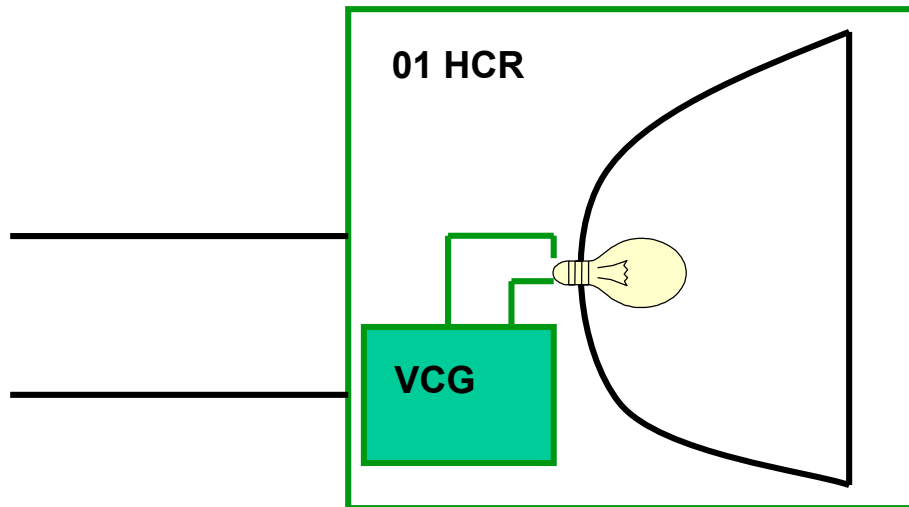
## STEP 2: VCG Task Force.

- VCG Task Force met several times:
  - In Paris, July 2010
  - In Jablona, October 2010
  - In Turin, January 2011
- Targets:
  - Studies the introduction of the VCG in Regulation R112,
  - deals with the harmonisation of the use of VCG in the different lighting regulations,
  - studies and prepares regulatory proposals to be introduced into ECE Regulations.

# Still pending points.

- The Task force has experienced difficulties to establish its term of reference. The main points which are still in discussion, are:
  - Target of the VCG in R112: Management **and/or** stabilization of the voltage at the terminal of the light source.
  - Influence of the use of a VCG on the reliability/life time of the halogen filament bulbs.
    - Range of voltage in which the halogen bulb life time is not affected.
    - Influence of Pulse Width Modulation.
  - Approval tests conditions: at 13.2V at the terminal of the device (as it is in R98 and R123) or at the reference luminous flux at 13.2V (as it is currently in R112).
- These questions will be answered during the next TF meeting.

# Possible Configuration



- Voltage Control Gear being part of the device



# Current status of the Voltage Control Gear in the other UNECE regulations in force

| Current VCG Status                                 |   |   |                                  |                           |
|--|---|---|----------------------------------|---------------------------|
|  | Lighting device.  |   |                                  | Operation on the vehicle. |
| Regulation   | R19   | R123  | R112                             | R48                       |
| VCG Allowed  | Yes   | Yes   | No (*)                           | Yes                       |
| Being part of the device                           | Yes   | Yes   | No (*)                           | Yes                       |
| Being part of the device & outside the body        | ?   | ?   | No (*)                           | Yes                       |
| Not being a part of the device                     | Yes   | Yes   | Yes<br><i>(due to R48 §5.27)</i> | Yes                       |
| Type Approval conditions                           | Applicant conditions<br><i>see § 6.4.1.1.2 &amp; §6.4.1.1.3</i>   | Other than LED modules:<br>Applicant conditions<br>LED modules:<br>13.2 V or applicant conditions<br><i>see §2.4 &amp; 2.5 of annex 9</i> | X                                | §5.27                     |
|  | If the VCG is a part of the vehicle, the declared voltage shall be applied / or the VCG shall be provided by the applicant to the lab |   |                                  |                           |
| Measurements at the reference luminous flux?       | No  | No  | X                                | X                         |
| Variable intensity                                 | Yes   | X   | X                                | X                         |
| EMI requirement                                    | Yes   | No  | X                                | X                         |
| Voltage range (except OVIG requirement R48 §5.27 ) | No  | No  | X                                | §5.27                     |
| (*) except if H9 with dual test voltage            |   |   |                                  |                           |
| "X" means "not defined"                            |   |   |                                  |                           |