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Variable Intensities Direction Indicators

Presentation to the 68th GRE session
16-18 October 2012

GTB

*The International Automotive Lighting
and Light Signalling Expert Group*

Groupe de Travail "Bruxelles 1952"

Variable Intensities Direction Indicators

Demo of a YouTube video of a Show Car at 67th GRE

- Could such a direction indicator be allowed?



- Answer: Not like presented. Show Car purpose only.

Variable Intensities Direction Indicators

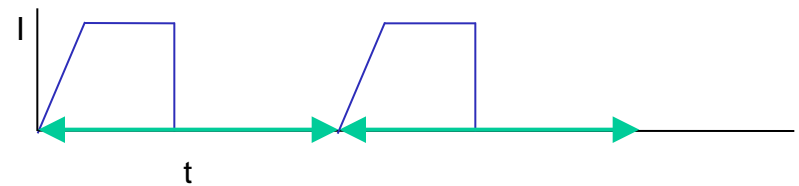
Benefit of the new technology if used in a smooth way

- Information to other road user about the turning direction
- Example half-hidden vehicle, motorbike

Initial proposal from the GTB Photometry WG:

"...5.7. For direction indicators of the categories 1, 1a, 1b, 2a or 2b it is allowed to change intentionally the luminous intensity during a flash inside the maximum apparent surface, if

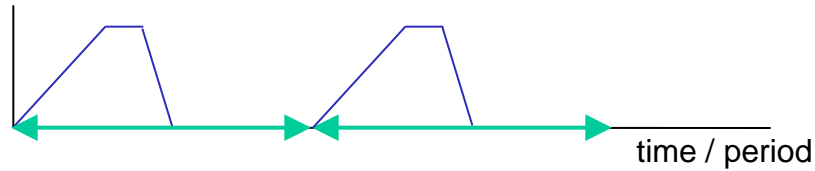
- the minimum intensity as specified in paragraph 6.2. will be activated immediately and shall be achieved over the whole period of the flash and
- the variation is oriented in direction to the outer side of the vehicle and
- the variation is increasing only and
- the maximum intensity for the relevant category will not exceeded..."



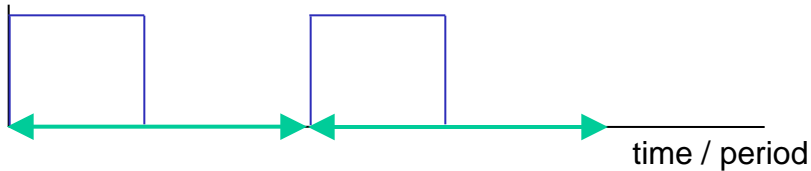
Variable Intensities Direction Indicators

Demonstration of rear lamps only

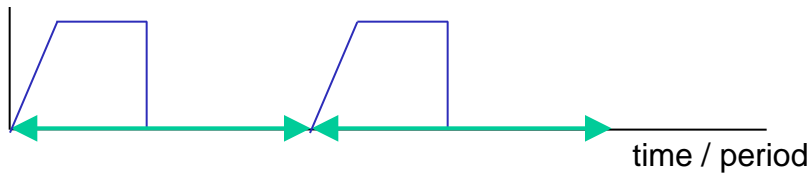
- Bulb direction indicator



- LED prototype static direction indicator



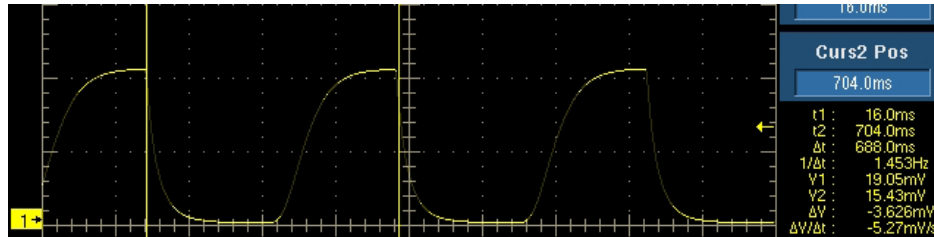
- LED prototype with variable intensities indicator



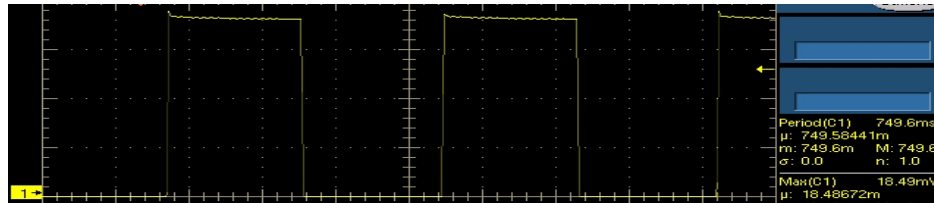
Variable Intensities Direction Indicators

Measurement of luminous intensity over time whole period

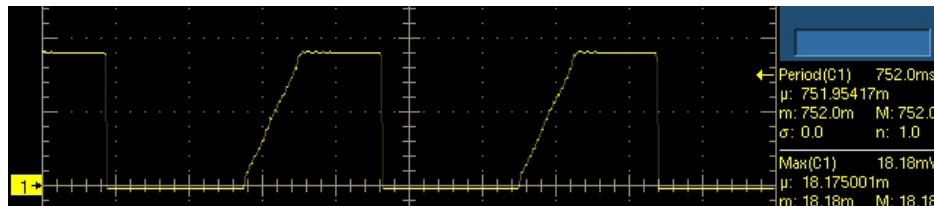
- Conventional bulb
(HV: 120 cd)



- LED static
(HV: 75 cd)



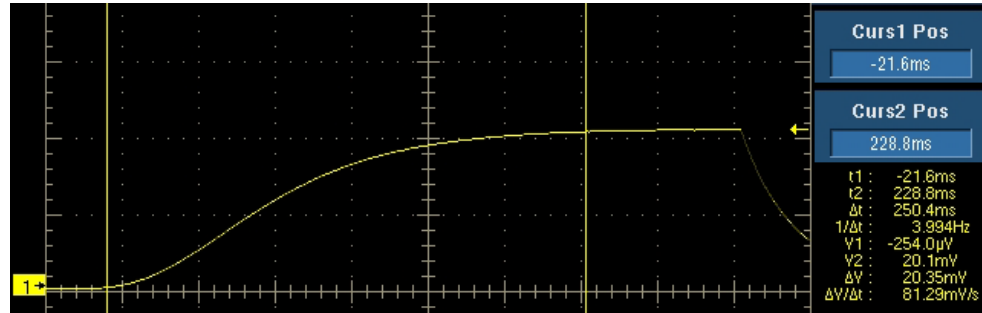
- LED variable
(HV: 75 cd)



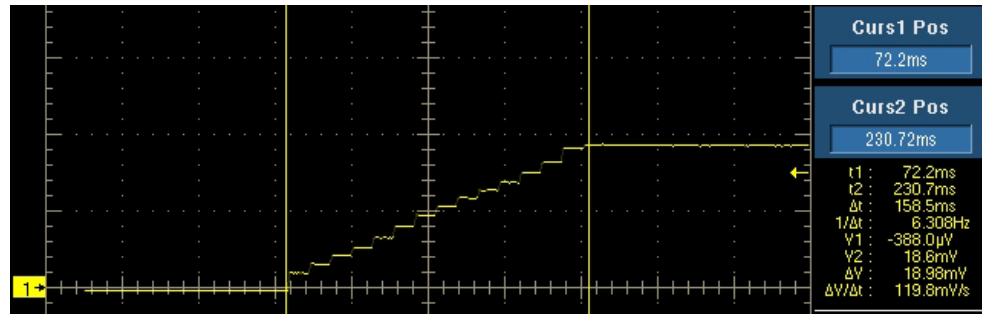
Variable Intensities Direction Indicators

Measurement of luminous intensity over time: ramp up

- Conventional bulb:
activated fully after 250 ms
(10%-90%: ca. 160 ms)



- LED variable:
activated fully after 158 ms
(10%-90%: ca. 130 ms)

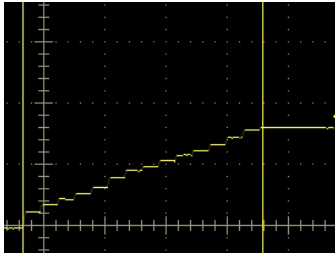


Variable Intensities Direction Indicators

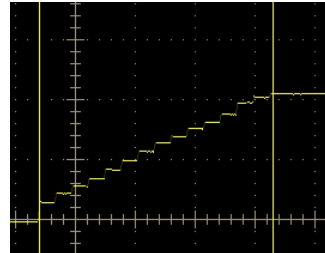
Measurement of luminous intensity over time: ramp up

➤ LED variable:

20° inside

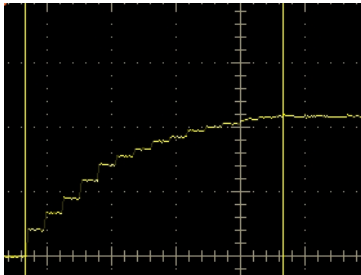


20° outside

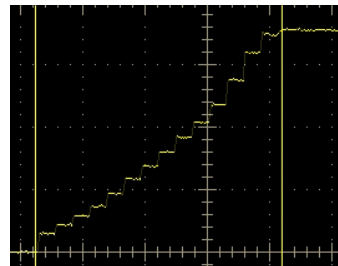


➤ LED variable:

45° inside



45° outside



Variable Intensities Direction Indicators

Variable Intensities DI and 5.9. in ECE R48

- “5.9. In the absence of specific instructions, the photometric characteristics (e. g. intensity, colour, apparent surface, etc.) of a lamp shall not be intentionally varied during the period of activation of the lamp.
- 5.9.1. Direction-indicator lamps, the vehicle-hazard warning signal, amber side-marker lamps complying with paragraph 6. 18. 7. below, and the emergency stop signal shall be flashing lamps. “

Variable Intensities Direction Indicators

Conclusion:

➤ A direction indicator is a flashing lamp. Without changing the aspect of the lamp it will never flash.

➤ In consequence either

- the intensity, or
- the apparent surface, or
- the intensity and the apparent surface

must be changed intentionally

➤ Amendments to UN-ECE Regulations 6 and 48 required to impose conditions for the variability of the signal.