Informal document GRE-92-06
(92nd GRE, 22-25 April 2025, agenda item 12 (c))

GTB
The International Automotive Lighting and Light Signalling Expert Group

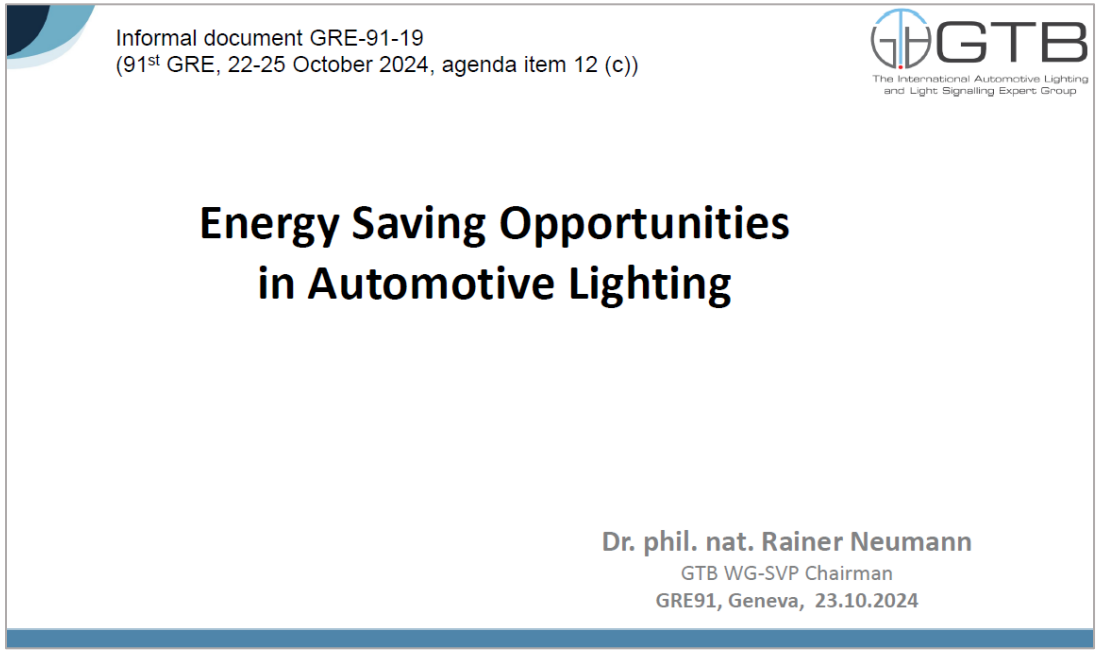
Energy Saving Opportunities in Automotive Lighting

GTB Activities Status Report

Dr. phil. nat. Rainer Neumann
GTB WG-SVP Chairman

Energy Saving Opportunities in Automotive Lighting
Reminder of GRE 91st session on 23 October 2024

GRE 91st Working Document GRE-91-19



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Energy Saving Opportunities in Automotive Lighting

Dr. phil. nat. Rainer Neumann
GTB WG-SVP Chairman
GRE91, Geneva, 23.10.2024

GRE 91st Report ECE-TRANS-WP29-GRE-91e

C. Miscellaneous

Documentation: Informal documents GRE-91-19, GRE-91-23

33. The secretariat reported on the highlights of the February 2024 annual session of the Inland Transport Committee (ITC) and provided a detailed overview of the ITC Decarbonization Strategy (GRE-91-23).

34. The expert from GTB presented a study on energy saving opportunities in automotive lighting (GRE-91-19), based on statistics from Germany. GRE experts considered that the most efficient options would be replacing traditional halogen lamps with LEDs, as well as introducing adaptive daytime running lamps (DRL) and adaptive low-beam headlamps. GRE also noted the differences between elderly and young drivers in their perception of road illumination, which should be taken into account for road safety.

Energy Saving Opportunities in Automotive Lighting
GTB current working directions

TARGET: ENSURE SAFETY & REDUCE ENERGY CONSUMPTION AND GLARE

- **DRL → passing-beam switching threshold reduction**
  > today at 1000lux of ambient illumination

- **Adaptive DRL**
  > adapted to the ambient illumination

- **Adaptive passing-beam**
  > new AFS class, focusing in the first 25m
  > activated only in specific situations of sufficient environmental illumination, low or zero speed, built-in areas

- Specific use case: **vehicle in stand still (e.g. stopped in a traffic light)**
  > reassessment of lighting and light-signaling functions activation

Energy Saving Opportunities in Automotive Lighting
GTB current working status (April 2025)

TARGET: ENSURE SAFETY & REDUCE ENERGY CONSUMPTION AND GLARE

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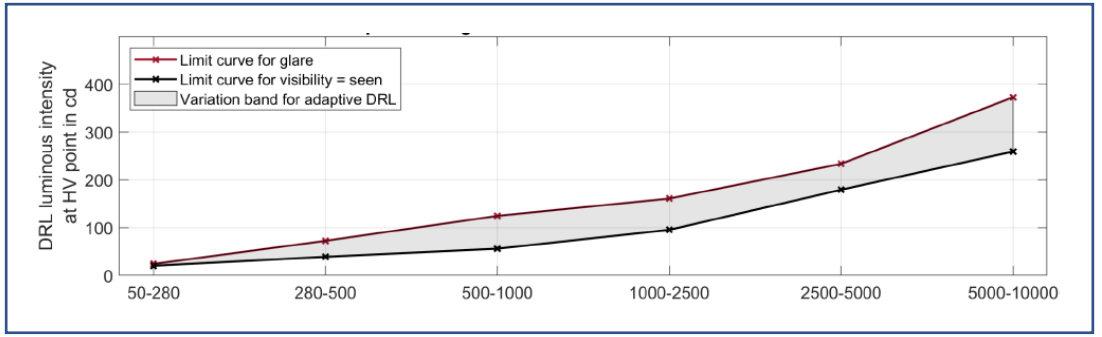

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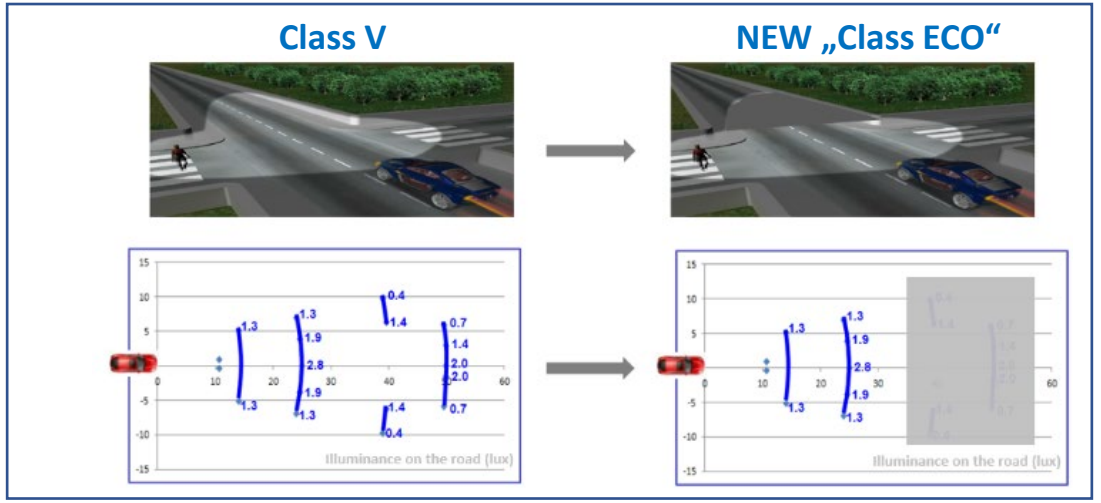

- Specific use case: **vehicle in stand still (e.g. stopped in a traffic light)**
  > reassessment of lighting and light-signaling functions activation

First ideas identified and under evaluation by the GTB Experts

Energy Saving Opportunities in Automotive Lighting

Next steps

TARGET: ENSURE SAFETY & REDUCE ENERGY CONSUMPTION AND GLARE

- **DRL → passing-beam switching threshold reduction**
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- **Adaptive DRL**
  > adapted to the ambient illumination

Extended complementary study considering:
- large number of test persons of different ages
- assessment of distances corresponding to city traffic (50m) and braking distance in country road (75m)
- large range of ambient illuminance (30lx – 10,000lx)

Conclusions: GRE-93 October 2025

- **Adaptive passing-beam**
  > new AFS class, focusing in the first 25m
  > activated only in specific situations of sufficient environmental illumination, low or zero speed, built-in areas

Initial proposal/input as informal document for GRE-93

- Specific use case: **vehicle in stand still (e.g. stopped in a traffic light)**
  > reassessment of lighting and light-signaling functions activation

Initial proposal/input as informal document for GRE-93

CONTACTS

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