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# Automotive Front Lighting

## Roadmap GTB Front Lighting WG

Chairman: Dr. Rainer Neumann

Secretary: Jean-Marc Prigent

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**GTB**

*The International Automotive Lighting  
and Light Signalling Expert Group*

*Groupe de Travail "Bruxelles 1952"*

# Automotive Front-Lighting

## Agenda

Future Trends

Future Needs

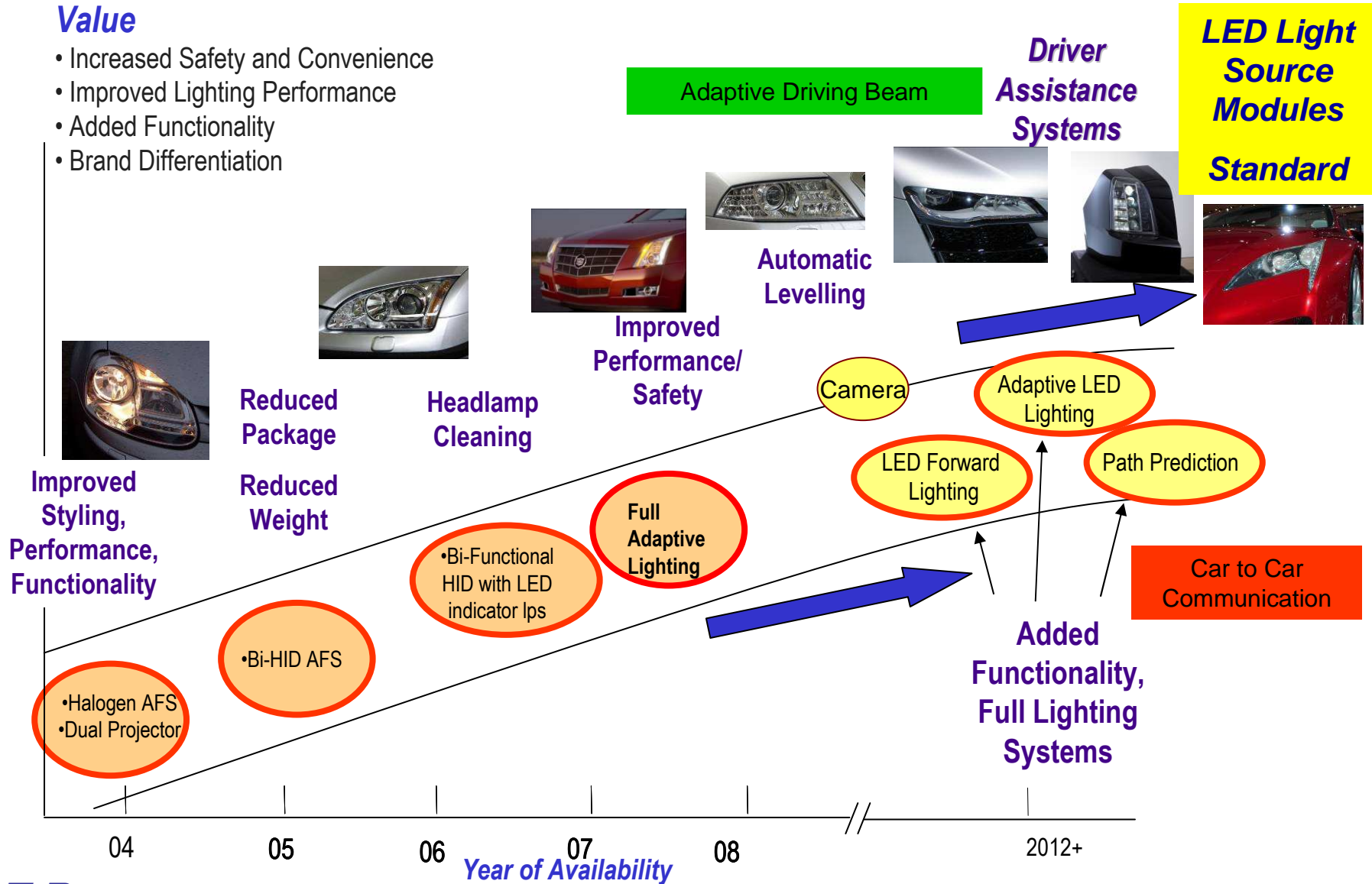
Short Term Actions

Summary & Outlook

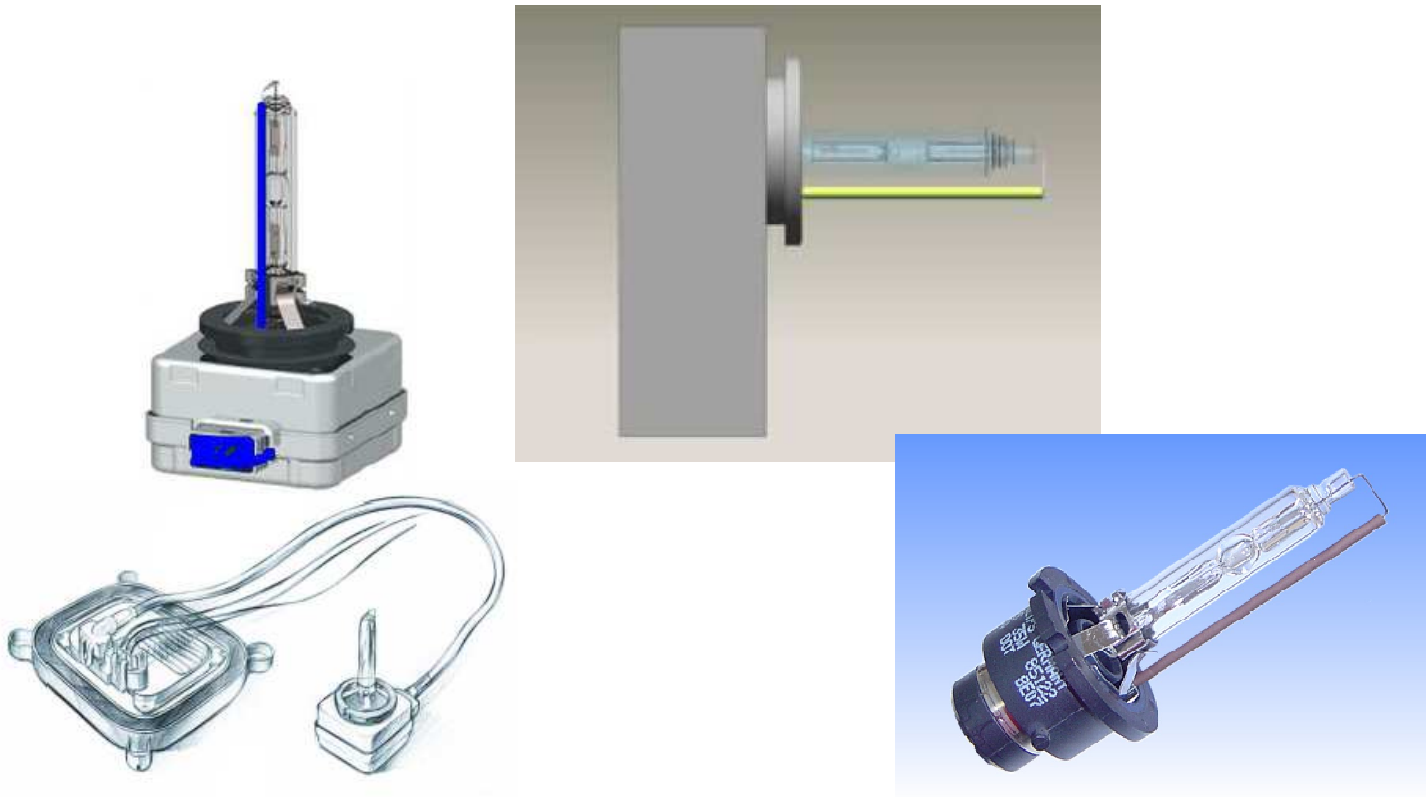
# Front Lighting Technology Market Demands

## Value

- Increased Safety and Convenience
- Improved Lighting Performance
- Added Functionality
- Brand Differentiation



# • HID 25W SYSTEMS



# Future Trends

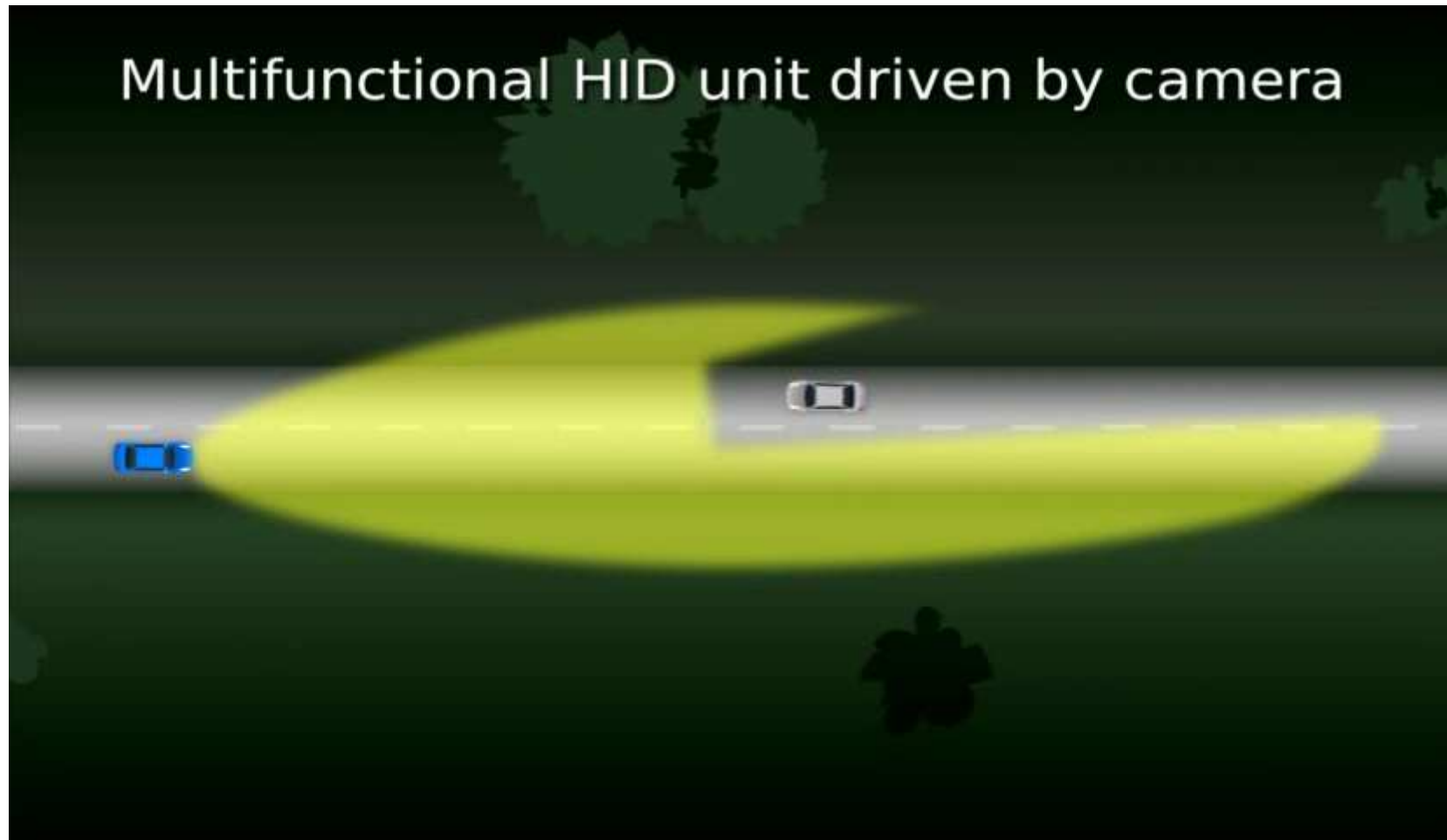
- Green Car Initiative (Electrical / Hybrid vehicles) requires:
- Power Consumption Reduction
- Fuel Consumption Reduction
- CO2 Reduction
- Weight Reduction
- Long Life Time



**LED**

## Attractive Styling

# Adaptive Driving Beam



# Future Needs

- There are two main categories, which we do have to cover from legislation point of view
  - 1) Harmonization of legislation with all kind of light sources (Halogen, Xenon, LED) and all kind of light applications standard dipped/main beam, AFS, LED-array generated or micro-mirror variation of light distributions
  - 2) Driver assistance lighting systems with external parameter variation of light pattern (e.g. Adaptive Driving Beam, Predictive AFS, Car to Car Communication)

# Short Term Actions

## Glare

- Automatic Levelling
- Headlamp Cleaning
- 2000 lm criterion

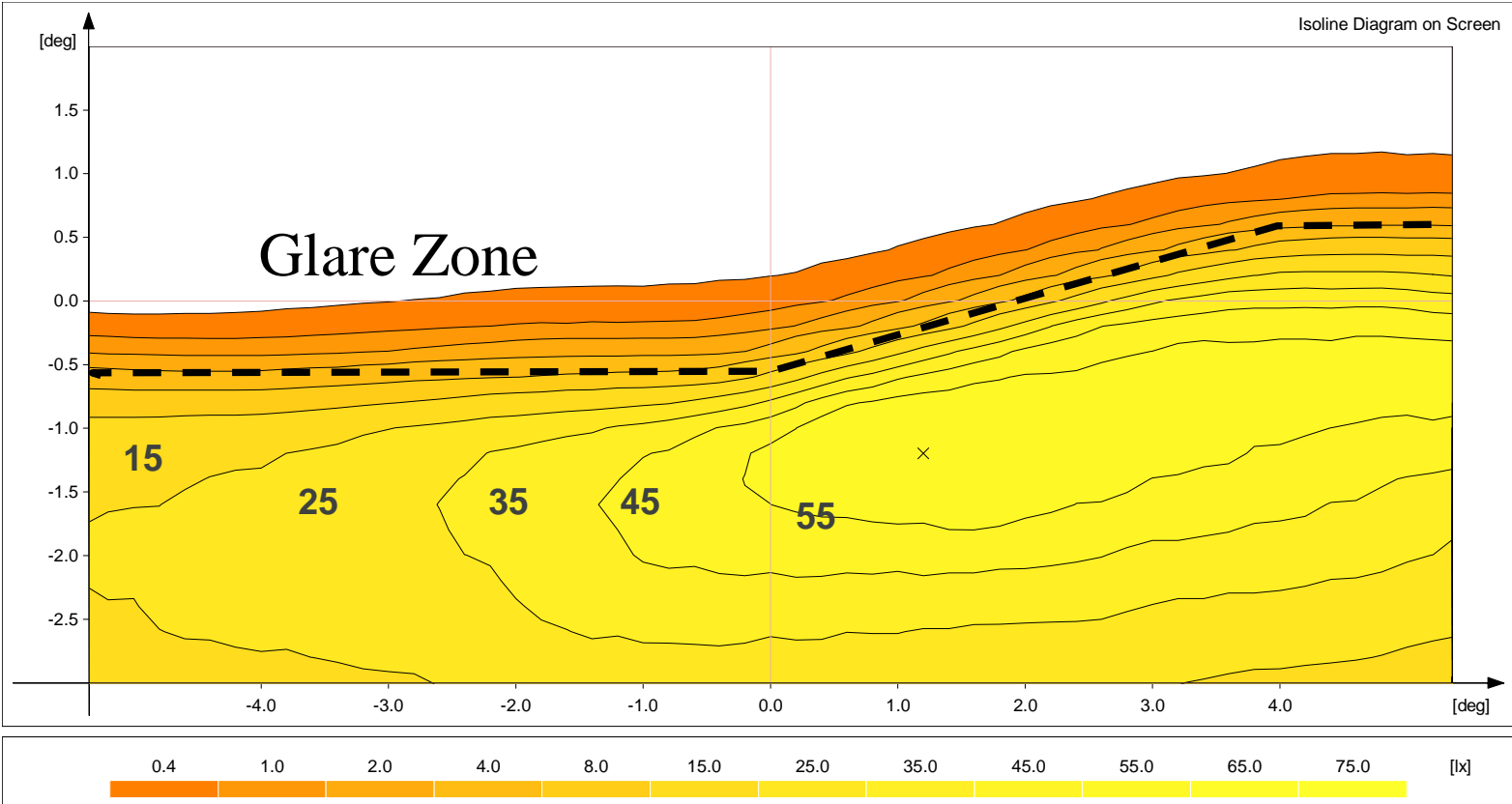
Literature Study (organized by SVP group)

Updated evaluation of glare for road users

With respect to spectral distribution of light source

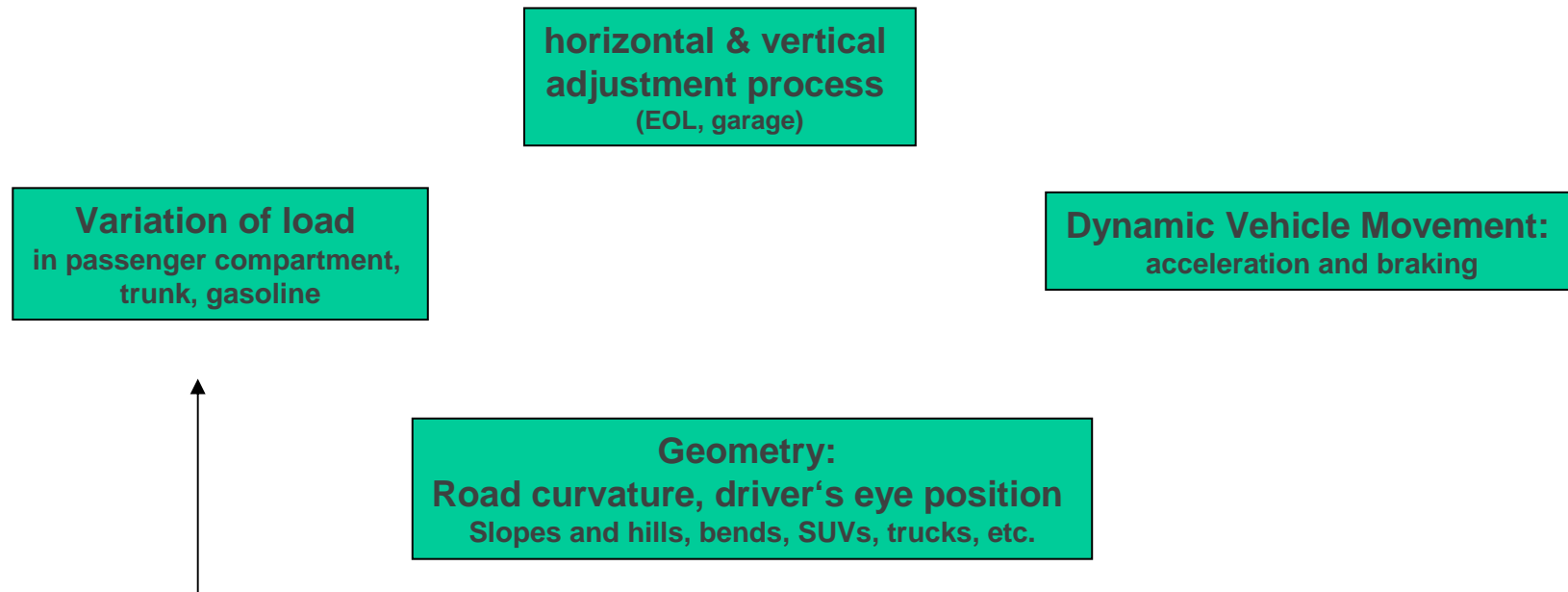


# Automatic Levelling and Risks of Glare by Dipped Beam Light Distribution



## Glare and Headlamp Levelling

Different effects and tolerances in „real life“, which lead to glare or decreased range of headlamp light distributions:



## Automatic Levelling

# Actions on Glare Study

- Evaluation on spectral distribution influence on disability glare
- (difference between Halogen, Xenon, LED)
- Definition of criteria to rate glare effects
- Classification of the importance of glare caused by levelling device
- Effect of discomfort glare

(Research study is going to start at University Darmstadt, Germany)

# Headlamp Cleaning

- First study was presented by University Darmstadt, Germany :
- Empirical tests have been made on the glare effect with respect to headlamp cleaning devices
- first results indicate, that the effectivity of headlamp cleaning devices is not that high
- further studies are ongoing

# Thanks for Your Attention !