29th International Pupil Colloquium Tübingen, Sept. 25-29, 2011

# Influence of Anti Glare Light on Glare Perception on Car Drivers at Night Which Mode of Action?

K. Radermacher, J. Oehme, uwe braun GmbH, Lenzen / Elbe

## 1 Mode of Operation / Technical Details

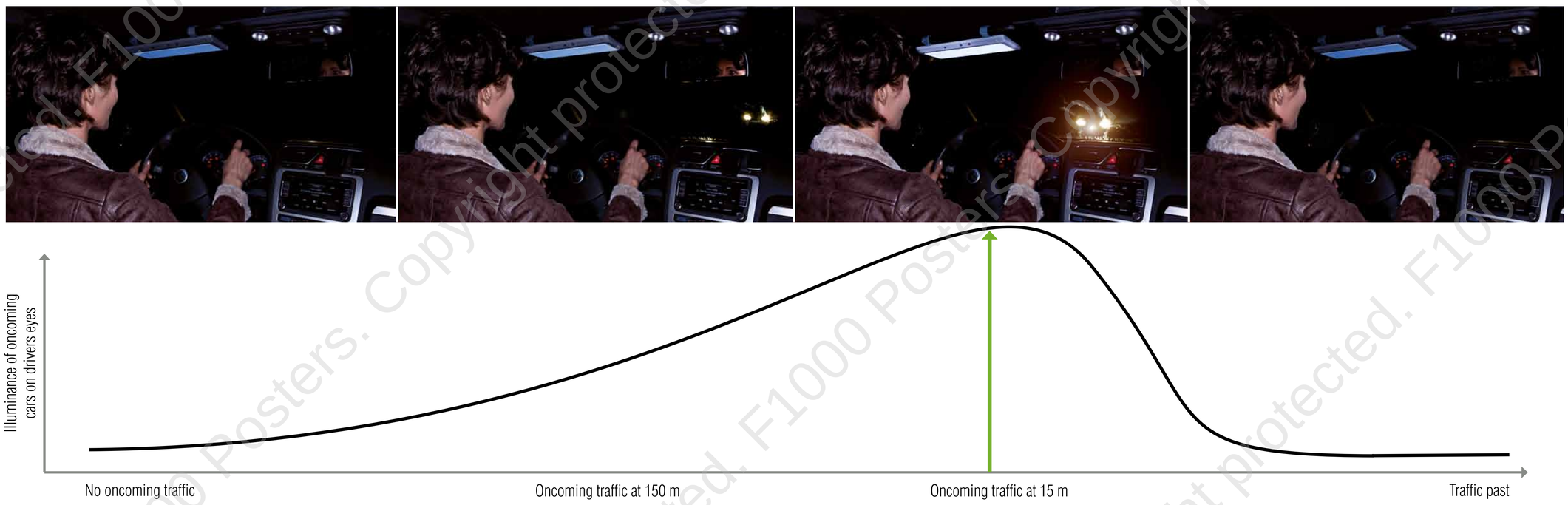


Fig. 1: Mode of operation Anti Glare Light („AntiBlendLicht - ABL“) as a function of oncoming car distance.

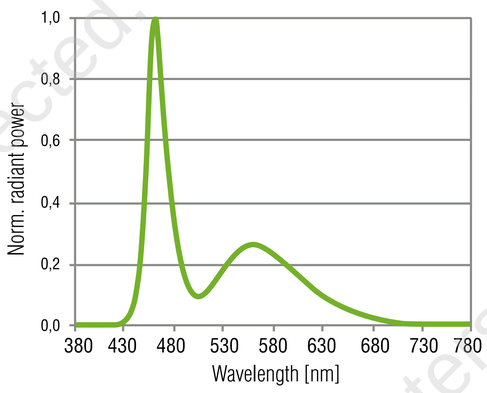


Fig. 2: Spectral distribution of ABL luminous source.

- Adjustable basic brightness: 0.07 - 10 cd/m²
- Adjustable brightness in cases of glare: approx. 60 cd/m²
- Color temperature: 12000 K
- Luminous area: 200 cm²

Fig. 3: Anti Glare Light (ABL)

## 2 Results

### Fraunhofer Institute: Discomfort Glare

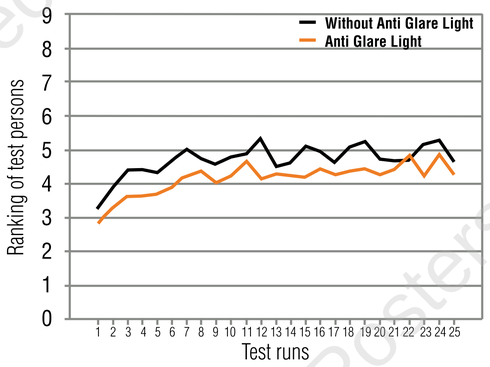


Fig. 4: Average discomfort glare ranking for all test persons

Conclusion: Discomfort glare is lower with ABL as compared to no ABL

### Karlsruhe Institute of Technology: Discomfort Glare

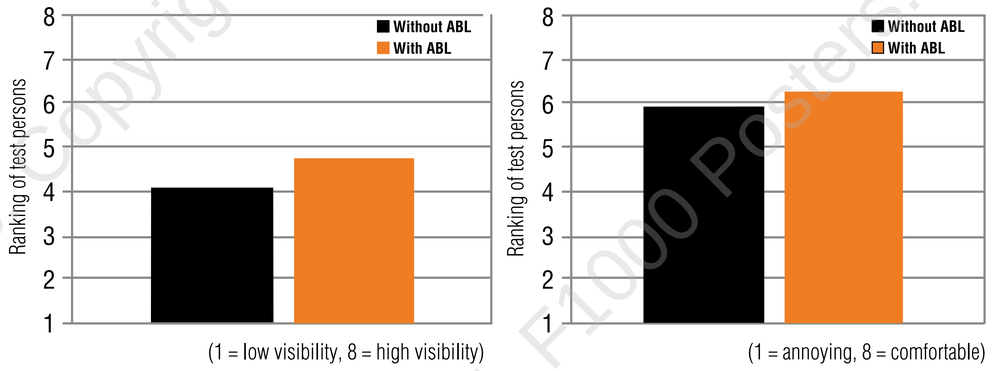


Fig. 5: Personal perception of visibility outside the car during the whole tests.

Fig. 6: Personal perception of interior lightning with and without ABL.

Conclusion: Better perception of visibility and interior light with ABL

### Karlsruhe Institute of Technology: Disability Glare

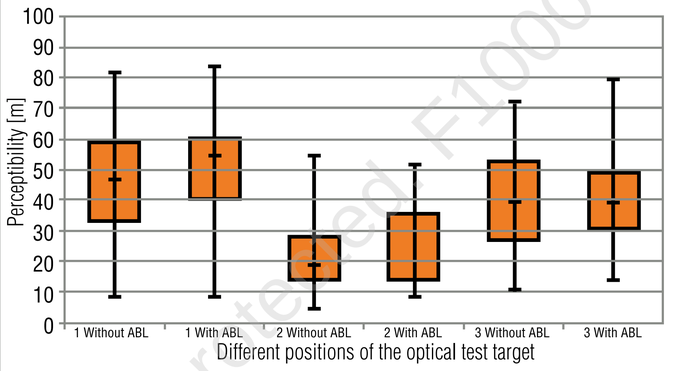


Fig. 7: Perceptibility of different optical test target positions (1, 2, 3) with and without ABL.

Conclusion: An average tendency of increasing perceptibility with ABL

## 3 Open Questions - Which is Mode of Action?

What is effective to reduce glare effects at nighttime?

- Limitation of retinal illuminance by reducing the pupil aperture
- Pre-exposure of different retinal sectors
- Influence of luminous color on pupil diameter
- Open for further discussions