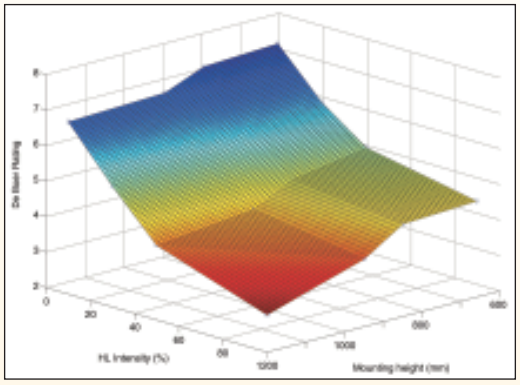
Examining Headlamp Glare for NHTSA

The LRC, working closely with the National Highway Traffic Safety Administration (NHTSA), examined headlamp visibility and glare. More than 5,000 drivers have complained about discomfort and reduced visibility due to headlamp glare. The LRC performed four studies to help NHTSA to develop appropriate regulations and ensure safer and more comfortable roadway travel at night.

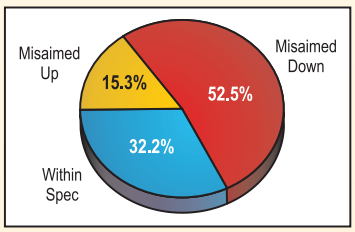
Experiments

Assessing Glare Reduction and Visibility Enhancement through AFS (advanced forward lighting systems) included developing and testing a prototype device. AFS may reduce driver discomfort by dimming headlamps in areas with street lighting.



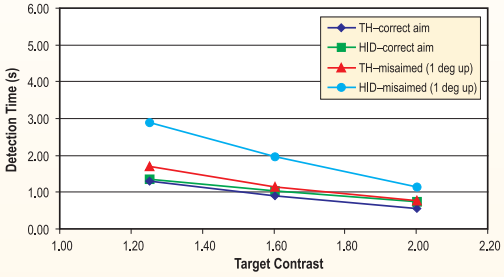
Ratings of driver comfort (higher De Boer number = higher comfort) as a function of headlamp intensity and mounting height

Headlamp Aim Survey analyzed headlamp light distribution of vehicles parked 25 feet from a vertical screen. At least 64% of vehicles tested had at least one headlamp misaimed.



Percentage of vehicles with at least one headlamp misaimed up or down according SAE standards (60 vehicles)

Glare Recovery Study determined the extent to which different headlamps' photometric performance affects driver glare recovery time after passing an oncoming vehicle.



Recovery time to glare exposures simulating typical HID and tungsten halogen (TH) headlamp systems

Naturalistic Data Analysis measured oncoming headlamp illuminances on 100 privately owned vehicles in the state of Virginia to characterize typical levels of exposure to oncoming headlamp illumination and its impact on driving performance.

Videographic data from the naturalistic study used to examine driver performance when encountering oncoming headlamp glare

Sponsor

National Highway Traffic Safety Administration (NHTSA)

For more information

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