

Workshop on Headlamp Safety Metrics: Balancing Visibility and Glare



Why are we concerned about headlamp safety metrics?

- **Glare complaints**
 - What's the effect on crash risk?
- **Nighttime crashes that may be preventable with improved visibility**
 - What's the effect on crash risk?
- **New forward lighting technologies**
 - What's the effect on crash risk?

National Traffic and Motor Vehicle Safety Act of 1966

General Requirements: “The Secretary of Transportation shall establish by order appropriate Federal motor vehicle safety standards. Each such FMVSS shall be practicable, shall meet the need for ***motor vehicle safety***, and shall be stated in objective terms.”

“**Motor Vehicle Safety** means the performance of motor vehicles or motor vehicle equipment in such a manner that the public is protected against ***unreasonable risk of accidents*** occurring as a result of the design, construction or performance of motor vehicles...”

Challenges of Quantifying Headlighting-related Crash Risk

- Headlamp parameters not measured in crash investigations—subjective at best
- Which proxy measure(s) of safety to use?
- How to balance the benefits and risks to drivers?
- How to evaluate risks for range of driving tasks, driving scenarios, and individual differences?

How to Measure Risk in the context of ...

**What can be done to reduce glare problems
and maintain or improve visibility?**

- New photometric specifications**
- Reduced mounting height**
- Improved aim (static and dynamic)**
- Others (e.g., washing systems, lamp color)**

Workshop Goal

- **To discuss what metrics can help quantify the safety benefits of possible solutions to minimizing glare and maximizing visibility from forward lighting systems**
 - **Vehicles on road now**
 - **Future vehicles**