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?
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