

Review of Comments from NHTSA's Notice of Request for Comment on Nighttime Headlighting Glare Lighting, Conspicuity and Visibility

Richard L. Van Iderstine

Chief, Visibility and Injury Prevention Division
Office of Crash Avoidance Standards



The Issue

Hundreds of Citizen Complaints over a two years' time, about glare from oncoming and following motor vehicles

The Substance of Complaints

As sources of glare:

- Identified Extra Headlamps
- Identified High-mounted Headlamps
- Identified Blue and Luxury Car Headlamps

Generally, what did many want?

- Extra lamps banned or at least only two headlamps on at one time
- Headlamps to be lowered
- Whiter/Bluer headlamps banned and recalled, or at least regulated

NHTSA's Response

- Study the complaints and talk to a sample of the authors and callers.
- Isolate Issues
- Develop an approach to address the complaints and issues
- Prepare a notice of request for comment to be published for wide circulation

Publish The Notice

- On September 28th, the notice was published, beginning the comment period
- It was to close on November 28th 2001
- The Notice asked 46 questions in six areas of concern about potential causes and solutions
- About 1300 comments were received by the end of November

Rate of Return

- Some commenters: issue is so important docket needs to stay open
- Closing date extended to January 28th 2002
- Almost 1600 comments received by that date
- Since then, more than 200 added
- Commenters were citizens, organizations and parties related to highway safety, lighting and vehicle manufacturers

What did citizens say?

Here is a typical comment from a citizen: “I wanted to add my complaint about the high intensity headlights. When I am in the vicinity of such cars coming towards me I become blinded by the light. At first drawn to the light, distracted and then unable to see as after the old flash bulbs. I find them highly dangerous in all vehicles. The headlights regular or otherwise in SUVs and other tall vehicles are also very distracting.”

What did citizens say?

Here is another less typical comment from a citizen: “I feel that the ‘glare’ from the bluish beams of xenon headlamps is simply a perception...
..... Please, please do not compromise the performance of our headlights because of a few complaints!”

Can you summarize their views?

- Glare has been steadily increasing over the last few years
- Causes are auxiliary lamps, headlamps too high, high intensity discharge and blue headlamps, aiming, and not enough state enforcement
- Need federal rules to stem the tide
- Some willing to put up with banning the offending devices, others clearly are not
- Thoughtful action requested soon

What did safety oriented organizations say?

- Agree with the perception of increased glare
- Want auxiliary lamps regulated to assure their proper performance and use
- Want headlamp performance to be improved so that aux. lamps are not needed
- Want lower mounting height
- Do not sacrifice safety performance

What else did these organizations say?

- Noted that citizens did not claim that a crash resulted from their glare encounters
- Want a federal aiming law for new and in-use vehicles
- Want clearly understandable lighting rules that can be enforced in the field
- Want NHTSA support for periodic motor vehicle inspection

What else did these organizations say?

- Consider automatic leveling and washing for HID Headlamps
- Consider banning projector HID headlamps and setting minimum lens area
- Consider mandating self-dimming inside and outside mirrors

What Did Lighting Industry Commenters Say?

- Aiming is very important; automatic aiming for HIDs is often recommended
- Regulated voltage to the headlamps is often recommended to reduce intensity variation
- Auxiliary lamps should be regulated
- Prohibit unacceptable modifications to lighting
- Lower maximum mounting height to 850 mm. or 900 mm. (SAE recommended or the Potential Harmonized height, respectively)
- Replaceable light sources must meet the specifications that the OEM sources must meet

What Else Did Lighting Industry Commenters Say?

- Distinguish between discomfort and disability glare when considering any changes
- Do not impair seeing distance to achieve glare reduction
- The long standing method of specifying a headlamp's performance is still appropriate; a vehicle based standard would inhibit design freedom, increase cost and cause enforcement problems

What Else Did Lighting Industry Commenters Say?

- Driver operated manual headlamp leveler would likely not be of value to U.S. drivers
- Regular aiming inspections should be implemented
- Consider the using SAE's newly developed coated bulb performance criteria to deal with colored headlamp bulbs
- Consider a minimum lens area for HID lamps to resolve high luminance

What Did Vehicle Manufacturers Say?

- Vehicle manufacturers generally agree that there are issues that need to be addressed
- Doing so must be in the context of safety
- Seeing distance should not be impaired
- Given the absence of real world crashes in either data or comments, mandating any solutions would be difficult to justify

What Else Did Vehicle Manufacturers Say?

- There are only a few reasonable solutions to some of these issues
- Complaints of HID glare are most likely the newness as occurred for halogen and DRL introductions
- Drivers already have many ways to minimize the effects of glare
- Vehicle price will increase for any of the potential solutions
- No advantage to ECE headlamps for glare reduction; there is measurable loss of seeing distance for roadway delineation and pedestrians

What Else Did Vehicle Manufacturers Say?

- Lower headlamp height to 1200 mm.
- Allow lower beam to be mounted below upper
- Adopt harmonized headlamp beam pattern
- Regulate auxiliary front lamps
- Conduct research to study the costs and benefits of glare reduction mirrors
- Work with the states to strengthen enforcement of aim, use, and legal lighting

What Is NHTSA's Plan?

Five major areas to explore:

- Auxiliary lamps
- Headlamp mounting height
- HID and other high output/technology headlighting
- Headlighting light sources
- Headlighting aiming

Auxiliary Lamps

- Regulate safe performance, installation and switching of all OEM, replacement, and aftermarket auxiliary roadway illumination devices
- Use modern, harmonized, industry or international standards as a basis

Headlamp Mounting Height

- Explore lowering maximum height for light duty vehicles from the current 1372 mm.

HID and other high output/technology headlighting

- Perform research on HID performance and characteristics to determine whether HID is unique in glare production
- Issue Notice of Request for Comment on how and what to regulate of HID's and other high output and high technology roadway lighting that may impair roadway safety if not regulated

Headlighting Replaceable Light Sources

- Evaluate the requirements for replaceable light sources used in roadway illumination devices to ensure adequate regulation of all the interchangeability aspects

Aiming

- Explore mandating a single aimability requirement for all roadway illumination devices
- Explore implementing this as a national standard for aiming inspection
- Explore ways to work with states to promote lighting enforcement

Conclusions

- All Parties agreed that amendments are necessary to the Federal Lighting Standard
- Many differ on exactly what is needed
- NHTSA is moving to explore, resolve, and amend as necessary and appropriate