Soft Lights Foundation

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December 25, 2023

BY MAIL

Ann Carlson, Acting Director
National Highway Traffic Safety Administration
1200 New Jersey Avenue, SE
Washington, DC 20590

Re: Petition to Issue Non-Compliance Order for the 2023 Jeep Grand Wagoneer For Non-Compliant Vehicle Lights

Dear Ann Carlson,

Pursuant to CFR Title 49, Subtitle B, Chapter V, Part 552, Subpart A Petitions for Rulemaking, Defect, and Non-Compliance Orders, the Soft Lights Foundation hereby submits this petition requesting that NHTSA issue an order of non-compliance for the 2023 Jeep Grand Wagoneer for failing to meet federal safety regulations for vehicle lighting. The petition is contained in the following pages.

Sincerely,

Mark Baker

Mark Baker
President
Soft Lights Foundation
mbaker@softlights.org

cc:
Representative Mike Thompson
Representative Mark Pocan
Representative Jamie Raskin

Petition for Order of Non-Compliance for 2023 Grand Wagoneer for Non-Compliant Vehicle Lights

I. Administrative Procedure Act

In 1946, Congress passed the Administrative Procedures Act, codified as 5 U.S.C. 551-559, which details the process for Administrative Law. Previously, automakers have complied with this law and have sought authorization from NHTSA to sell their vehicles with different types of headlight technology.

As an example, prior to 1976, NHTSA disallowed the use of rectangular headlights. The November 24, 1975 Federal Register states, "*The NHTSA proposed on April 30, 1975, (40 FR 18795) the termination of the amendment to Standard No. 108 adopted November 30, 1973, (38 FR 33084), that disallowed use of rectangular headlamp systems on motor vehicles manufactured on or after September 1, 1976. In allowing probationary use of the new headlamp system, this agency had concluded that the* ***interests of safety*** *required a period which the systems could be evaluated as to on-road performance and availability of replacements.*"[1] This change in rules occurred as a result of a federal regulatory petition submitted by the auto industry requesting that NHTSA allow rectangular headlights.

However, in the rejection of the Soft Lights Foundation petition NHTSA-2022-0109 to issue an order of non-compliance for certain vehicles with LED headlights, NHTSA Associate Administrator for Enforcement, Ann Collins, wrote, "*NHTSA does not "authorize" or "approve" motor vehicles or motor vehicle equipment.*"[2] The petitioner is not aware of any federal statute that has repealed the requirements of 5 U.S.C. 551-559, nor is the petitioner aware of any rule or regulation published by NHTSA that states that NHTSA no longer "authorizes" or "approves" motor vehicle equipment. The petitioner is also not aware of any release of responsibility from Congress for ensuring the safety of the public as relates to headlights.

NHTSA has a long history of authorizing and approving motor vehicle equipment including rectangular headlights, replaceable bulbs, and Adaptive Driving Beam. Therefore, the claim by Ann Collins that NHTSA does not "authorize" or "approve" motor vehicle equipment is clearly unsubstantiated and

[1] https://www.govinfo.gov/content/pkg/FR-1975-11-24/pdf/FR-1975-11-24.pdf

[2] https://www.federalregister.gov/documents/2022/12/08/2022-26658/soft-lights-foundation-denial-of-petition-for-decision-of-non-compliance-order

this claim cannot be used to reject a petition to NHTSA regarding vehicle equipment that is dangerous. The Soft Lights Foundation submitted a Request for Interpretation regarding this topic to NHTSA on September 27, 2023.[3] NHTSA has not responded to this request.

II. Motor Vehicle Safety Act

In 1966, Congress passed the National Traffic and Motor Vehicle Safety Act which led to the creation of the National Highway Traffic Safety Administration.[4] The Federal Motor Vehicle Safety Standards under Section 103 of the Act are codified as CFR Title 49, Subtitle B, Chapter V, Part 571.

49 U.S.C. 30101 – Purpose and Policy states, "*The purpose of this chapter is to reduce traffic accidents and deaths and injuries resulting from traffic accidents. Therefore it is necessary to prescribe motor vehicle safety standards for motor vehicles and motor vehicle equipment in interstate commerce and to carry out needed safety research and development.*" Thus, Congress has directed NHTSA to publish performance standards that reduce traffic accidents, injuries, and deaths.

The invention of LED headlights has created a serious threat to public safety due to the extreme intensity of the light emitted by flat surface LED chips and due to the use of hazardous, high-glare blue wavelength light. As mandated by Congress, NHTSA is obligated to perform safety research on LED headlights and to publish performance standards for LED headlights. Because no automaker has petitioned NHTSA for authorization to use LED headlights, and because NHTSA has not carried out research or published performance standards on its own, the Federal Motor Vehicle Safety Standards Section 108 (FMVSS-108) has not been updated to protect drivers and pedestrians from the extreme intensity and blue wavelength light emitted by LED headlights. This lack of safety standards for LED headlights has likely resulted in an increase in traffic accidents, injuries, and deaths.

Figure 1 illustrates the test points for LB1V and LB2V in FMVSS-108. The large blue rectangle shows the areas in front of the vehicle with no limit on headlamp intensity. While this lack of limits in the blue rectangle area may have had little impact on safety with the use of tungsten filament headlights, the absence of any limit on intensity with LED headlights creates a major safety hazard. LED chips have a luminance of at least 70,000,000 candela per square meter, exceeding human comfort and tolerance levels by many orders of

[3] https://www.softlights.org/wp-content/uploads/2023/09/NHTSA-LED-Headlight-Interpretation-Request.pdf
[4] https://www.govinfo.gov/content/pkg/STATUTE-80/pdf/STATUTE-80-Pg718.pdf

magnitude. For driver and pedestrian safety, it is critical that NHTSA publish an overall limit on headlamp intensity for the area within the blue rectangle.

Figure 1 - Unlimited Brightness[5]

In addition, the automakers are using LED headlights with a Correlated Color Temperature typically around 6500 Kelvin. This is an extremely high level of blue wavelength light which creates significant disability glare, and which is a photobiological hazard for the eye, likely causing eye cell death. The Food and Drug Administration has not published performance standards for LED visible radiation, as required by 21 U.S.C. 360ii, despite the thousands of research studies proving the hazards of blue wavelength light.[6]

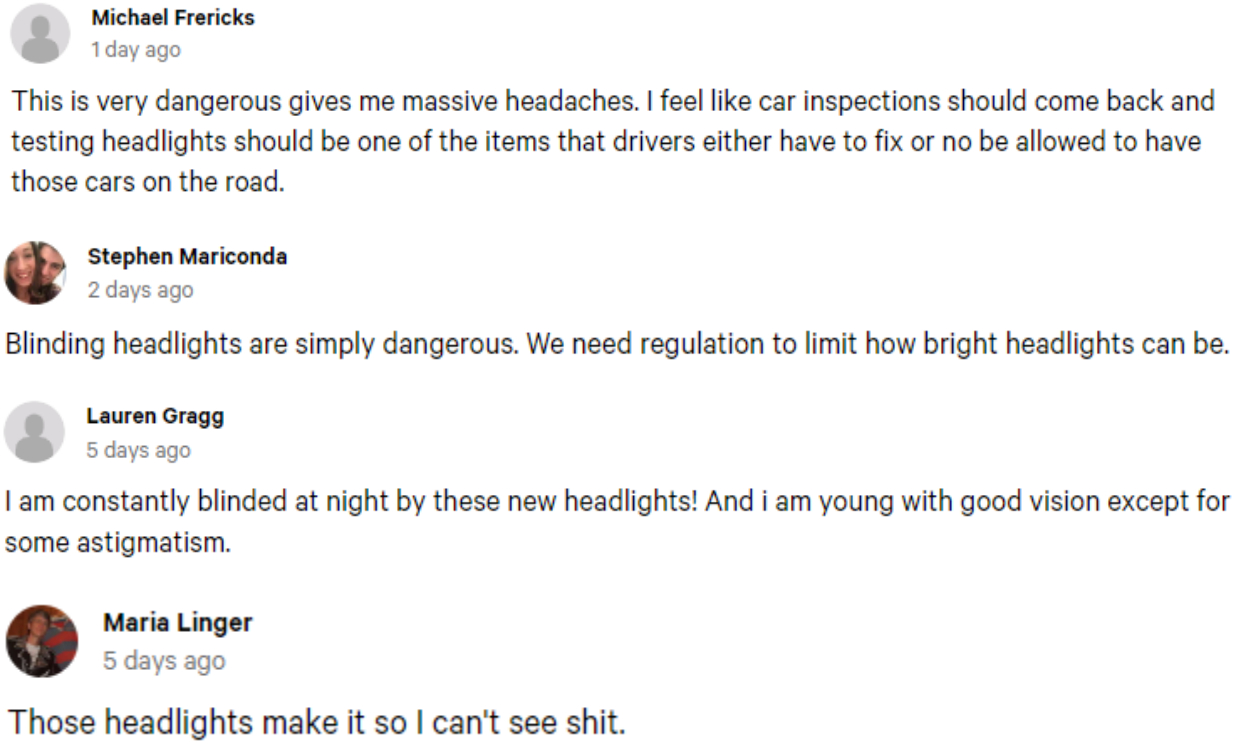
Had the automakers complied with 5 U.S.C. 551-559 and submitted a federal regulatory petition to NHTSA requesting to use LED headlights, NHTSA would have taken the necessary steps to develop limits on intensity and blue wavelength light and would have published updated performance standards in FMVSS-108 to ensure that vehicles with LED headlights did not increase risk of vehicle crashes, injury, or death. Instead, since no automaker has complied with 5 U.S.C. 551-559, and since NHTSA has not updated FMVSS-108 to limit intensity in the area of the blue rectangle, any mismatch in vehicle heights will cause dangerous disability glare, as will any bump, hill, or curve in the road.

III. Public Comments

[5] https://www.reddit.com/r/fuckyourheadlights/
[6] https://www.softlights.org/eye-hazards/

The public has serious concerns about the safety of LED headlights. Over 50,000 people have signed a petition demanding the LED headlights be banned.[7] This petition contains thousands of comments describing the blinding glare, eye pain, and fear for their safety due to the use of LED headlights. The thousands of comments from this petition have been submitted to NHTSA on multiple occasions, and yet NHTSA has not acknowledged these comments or the petition.

On December 10, 2022, the Soft Lights Foundation submitted a petition to NHTSA requesting that FMVSS-108 be updated to require that all headlamps emit spatially uniform visible radiation.[8] NHTSA has not acknowledged this submission and has not assigned the petition a docket number. This federal regulatory petition submission contains thousands of comments from the change.org petition. The petitioner has no evidence to show that NHTSA has entered these comments into the public safety defect database. Below are a few of the most recent safety comments about LED headlights.



Michael Frericks
1 day ago

This is very dangerous gives me massive headaches. I feel like car inspections should come back and testing headlights should be one of the items that drivers either have to fix or no be allowed to have those cars on the road.

Stephen Mariconda
2 days ago

Blinding headlights are simply dangerous. We need regulation to limit how bright headlights can be.

Lauren Gragg
5 days ago

I am constantly blinded at night by these new headlights! And i am young with good vision except for some astigmatism.

Maria Linger
5 days ago

Those headlights make it so I can't see shit.

[7] https://www.change.org/p/u-s-dot-ban-blinding-headlights-and-save-lives
[8] https://www.softlights.org/wp-content/uploads/2022/12/NHTSA-Petition-to-Require-Inverse-Square-Law-Lamps.pdf

Hugh Downs
5 days ago

I have astigmatism in both eyes and driving at night is brutal due to the headlights.

Jane Round
5 days ago

Headlights are so incredibly intense these days, especially on dark country roads. I am scared to drive at night now.

There are thousands of comments similar to the ones above. NHTSA is obligated by 49 U.S.C. 30101 to investigate these complaints and publish performance standards in FMVSS-108 to ensure the comfort, health, safety, and civil rights of the public. This effort starts by notifying the automakers that they are required to petition NHTSA for authorization to sell vehicles with LED headlight technology and to provide the studies that show how the light from the LED headlamps is distributed, the spectral power distribution of the light, the luminance of the emitter, the square wave flicker, the use of pulse width modulation, and the impacts of LED headlights on safety for drivers and pedestrians.

IV. Glare

In the rejection letter for petition NHTSA-2022-0109, Ann Collins wrote, *"NHTSA believes the current research supports that FMVSS No. 108 contains the appropriate requirements to address these areas. NHTSA agrees that glare can have a negative safety impact and believes FMVSS No. 108 addresses that issue."* As shown in Figure 1, FMVSS-108 contains no limits on intensity for the entire blue rectangle area, and thus NHTSA's claim that FMVSS-108 contains appropriate requirements to address glare clearly is not justified.

Ann Collins also wrote, *"While LED integral beam headlamps can be made to have a smaller footprint compared to lamps that use halogen or high-intensity discharge (HID) light sources, which can be perceived to be more uncomfortable at closer distances, an agency report to Congress, "Nighttime Glare and Driving Performance," stated that when viewed from more than approximately 100 feet, the size of a headlamp has little impact on discomfort and that no research has identified any impact of oncoming headlamp size on the visibility of the person experiencing glare."*[9]

[9] https://www.nhtsa.gov/sites/nhtsa.gov/files/glare_congressional_report.pdf

The above statement is based on a report that was delivered to Congress in 2007, prior to the widespread introduction of LED headlights. In that glare report to Congress, NHTSA writes, "*New headlamp technologies (e.g., light emitting diodes), even newer than HID and projector headlamps, are beginning to be introduced on vehicles in the United States.*" and *"Indeed, new headlamp systems may aid in reducing the tradeoff between visibility and glare by allowing systems to respond dynamically to the driving situation. At the same time, these dynamic headlamp systems will present new challenges for regulation of vehicle lighting."*

Thus, at least as far back as 2007, NHTSA was aware that the impacts of LED headlights needed study and that regulation of LED technology was a requirement. Yet rather than notify the automakers that they were required to comply with 5 U.S.C. 551-559 and petition NHTSA for authorization to sell vehicles with LED headlights and provide proof to NHTSA that LED headlights were safe, NHTSA took no action. Previous petitions by the automakers for modifications to FMVSS-108 required approximately a decade for NHTSA to study the new technology and eventually grant approval of the petition. In the case of LED headlights, the entire regulatory process was skipped, with LED headlights simply appearing on roadways with no regulation at all, putting public safety at risk.

LEDs emit extremely intense light from a tiny flat surface area. Ann Collins wrote that the size of the headlamp has little impact on discomfort and that no research has identified any impact of oncoming headlamp size on the visibility of the person experiencing glare. This statement is based on the 2007 report that NHTSA acknowledges does not include LED headlights. Given that LEDs have drastically different spatial, spectral, and temporal characteristics as compared to a tungsten filament, it is inappropriate for NHTSA to claim that the size of the emitter has little impact on discomfort or disability glare, and it is inappropriate to claim that no research has identified issues with glare from LED headlamps because the studies have not yet been performed. NHTSA has not studied the impacts of glare from LED headlights and has not published the required performance standards for LED headlights which would place a limit on intensity and blue wavelength light within the blue rectangle area.

V. 2023 Jeep Grand Wagoneer

The 2023 Jeep Grand Wagoneer is sold with LED headlights,[10] even though the manufacturer, Stellantis, has not submitted a petition to NHTSA for authorization to sell their vehicles with LED headlights, and even though NHTSA

[10] https://www.jeep.com/wagoneer/grand-wagoneer/specs.series-ii.html

has not updated FMVSS-108 to set limits on intensity and blue wavelength light in the blue rectangle area shown in Figure 1. The LED headlights on the 2023 Jeep Grand Wagoneer present a major safety hazard, and because Stellantis did not petition NHTSA or receive approval to sell the vehicle with LED headlights, the 2023 Jeep Grand Wagoneer does not meet federal safety standards and NHTSA should issue an order of non-compliance to Stellantis.

VI. Summary

The 2023 Jeep Grand Wagoneer does not meet federal safety regulations specified in 49 CFR 571.108 for the following reasons:

1. Stellantis has no complied with 5 U.S.C. 551-559 and petitioned NHTSA for authorization to use LED headlight technology.
2. LED headlight technology generates extreme light intensity that demands restrictions in FMVSS-108 that may not have been necessary for tungsten filament headlights.
3. Blue wavelength light is a photobiological hazard requiring safety limits from the FDA.
4. NHTSA has not published performance standards in FMVSS-108 for LED headlights and has not set limits on intensity or blue wavelength light for the blue rectangle area shown in Figure 1.
5. Tens of thousands of people have signed a petition and submitted thousands of comments to NHTSA stating that LED headlights are dangerous.
6. Appendix A shows the front page of a newspaper story about LED headlights glare and shows photo evidence of glare from various vehicles with LED headlights.[11]

VII. Requested Action

1. Issue Stellantis an Order of Non-compliance for the 2023 Jeep Grand Wagoneer.

2. Direct Stellantis to comply with 5 U.S.C. 551-559 for LED headlights.

[11] https://www.reddit.com/r/fuckyourheadlights/

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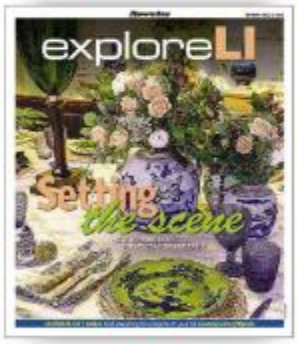

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