

April 3, 2024

Pete Buttigieg, Secretary  
US Department of Transportation  
1200 New Jersey Avenue, SE  
Washington, DC 20590  
secretaryScheduler19@dot.gov

**Re: Unregulated, Unapproved, and Dangerous LED Vehicle Lights**

Dear Secretary Buttigieg,

On April 2, 2024, the petition to ban blinding headlights reached 60,000 signatures. The thousands of comments from the public describing the debilitating glare that is endangering American lives are being delivered to your office. We ask that you direct National Highway Traffic Safety Administration Acting Director Sophie Shulman to take immediate action to solve the LED headlight crisis which is illustrated in the photo below.



LEDs emit an intense, directed energy beam of light from a flat surface chip. The physics characteristics of LED light are dramatically different from traditional light sources such as a burning tungsten filament, and thus it is necessary to publish an entirely different set of regulations than exist currently for LED headlights, LED brake lights, and LED flashing lights to ensure the comfort, health, safety, and civil rights of drivers and pedestrians.

No automaker has complied with 5 U.S.C. 551-559 and petitioned NHTSA for authorization to sell vehicles with LED headlights, LED Daytime Running Lights, LED brake lights, or LED flashing lights. NHTSA has not vetted LED headlights for safety and has not published any performance standards for LED headlights. NHTSA has not published a Notice of Proposed Rulemaking in the Federal Register, and the public has not been given the opportunity to comment on the use of LEDs for vehicle lighting systems, including LED headlights, LED brake lights, LED flashing lights, and LED displays.

The Administrative Procedure Act of 1946 details the requirements for federal rulemaking. The Motor Vehicle Safety Act of 1966 states that manufacturers must manufacture vehicles in a way that protects the public from an unreasonable risk of injury or death. The Radiation Control for Health and Safety Act of 1968 directs the US Food and Drug Administration to publish performance standards for electronic products to limit the emission of, and exposure to, electromagnetic radiation. In the case of LED headlights and other LED lighting systems on vehicles, all these laws were skipped.

However, NHTSA issued a Letter of Interpretation on December 21, 2005, which uses contorted reasoning to state that NHTSA “believes” that if LED headlights are wired together in series, that this would meet the NHTSA criteria that LED headlights emit light from a single source.<sup>1</sup> In the letter, NHTSA also states that LED headlights must meet NHTSA photometric requirements, yet NHTSA knows that there are no limits on intensity for most of the locations in front of the vehicle. NHTSA made no mention in the letter of the need to update Federal Motor Vehicle Safety Standard Section 108 for LED headlights. **It is this single Letter of Interpretation from NHTSA upon which the entire auto industry appears to have staked its authority to sell vehicles with LED headlights. NHTSA and the automakers have thus violated the entire set of Congressional laws that have been enacted to protect public health, safety, and civil rights.**

The courts have consistently ruled that federal agencies must not act arbitrarily or capriciously. Agency decisions must be carefully reasoned and justified, and federal rulemaking laws must be followed. In the case of LED headlights, there has been no vetting to ensure that LED headlight systems are safe, no proposal of regulations to limit intensity, blue wavelength light, or flicker, and no opportunity for the public to provide comment. Thus, NHTSA has acted arbitrarily and capriciously in its decision to allow LED headlights and its actions are unlikely to survive a court challenge.

49 U.S.C. Section 30111 states: *“(a)General Requirements.— The Secretary of Transportation shall prescribe motor vehicle safety standards. Each standard shall be practicable, meet the need for motor vehicle safety, and be stated in objective terms”* where ‘motor vehicle safety’ means *“the performance of a motor vehicle or motor vehicle equipment in a way that protects the public against unreasonable risk of accidents occurring because of the design, construction, or performance of a motor vehicle, and against unreasonable risk of death or injury in an accident, and includes nonoperational safety of a motor vehicle.”* LED headlights, LED Daytime Running lights, and LED brake lights do not

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<sup>1</sup> <https://www.nhtsa.gov/interpretations/ledlamp1>

meet the requirements of 49 U.S.C. Section 30111, and thus automakers are violating the law by selling unsafe vehicles.

NHTSA was recently directed by Congress to approve the use of Adaptive Driving Beam. However, ADB will not solve the problem of disability glare caused by the unregulated LED headlights and will not solve the extreme intensity issue of LED brake lights, taillights, fog lights, or flashing lights. ADB is designed to increase the use of high beams, and thus ADB will not solve the fact that NHTSA has published no overall limit for the intensity of low beam headlights, no limit on the level of blue wavelength light, and no limit on hazardous square wave flicker caused by Pulse Width Modulation. ADB is not a solution for the lack of NHTSA regulation for LED lighting on vehicles.

FMVSS-108 Table XIX-a, shown below, contains the limits for headlight intensity. As you can see in the column labeled LB2V, most of the test points for vehicle headlights allow unlimited intensity. It is this lack of an overall limit on headlight intensity, plus the lack of limit on the level of blue wavelength light, that is causing the debilitating glare emitted by LED headlights. Adaptive Driving Beam will not solve this problem. The solution to blinding headlights requires updating FMVSS-108 Table XIX-a to set an overall limit on intensity, and to update FMVSS-108 to set a limit on the level of blue wavelength light and square wave flicker caused by Pulse Width Modulation.

TABLE XIX-a: HEADLAMP LOWER BEAM PHOTOMETRY REQUIREMENTS									
TEST POINT (degrees)		LOWER BEAM # 1M (LB1M)		LOWER BEAM # 1V (LB1V)		LOWER BEAM # 2M (LB2M)		LOWER BEAM # 2V (LB2V)	
		MAXIMUM PHOTOMETRIC INTENSITY (cd)	MINIMUM PHOTOMETRIC INTENSITY (cd)	MAXIMUM PHOTOMETRIC INTENSITY (cd)	MINIMUM PHOTOMETRIC INTENSITY (cd)	MAXIMUM PHOTOMETRIC INTENSITY (cd)	MINIMUM PHOTOMETRIC INTENSITY (cd)	MAXIMUM PHOTOMETRIC INTENSITY (cd)	MINIMUM PHOTOMETRIC INTENSITY (cd)
<sup>(1)</sup> 10U to 90U	<sup>(1)</sup> 90L to 90R	125	-	125	-	125	-	125	-
4U	8L & 8R	-	64	-	64	-	64	-	64
2U	4L	-	135	-	135	-	135	-	135
1.5U	1R to 3R	-	200	-	200	-	200	-	200
1.5U	1R to R	1,400	-	1,400	-	1,400	-	1,400	-
1U	1.5L to L	700	-	700	-	700	-	700	-
0.5U	1.5L to L	1,000	-	1,000	-	1,000	-	1,000	-
0.5U	1R to 3R	2,700	500	2,700	500	2,700	500	2,700	500
H	V	5,000	-	5,000	-	-	-	-	-
H	4L	-	135	-	135	-	135	-	135
H	8L	-	64	-	64	-	64	-	64
0.5D	1.5L to L	3,000	-	-	-	3,000	-	-	-
0.5D	1.5R	20,000	10,000	-	-	20,000	10,000	-	-
0.6D	1.3R	-	-	-	10,000	-	-	-	10,000
0.86D	V	-	-	-	4,500	-	-	-	4,500
0.86D	3.5L	-	-	12,000	1,800	-	-	12,000	1,800
1D	6L	-	1,000	-	-	-	1,000	-	-
1.5D	2R	-	15,000	-	15,000	-	15,000	-	15,000
1.5D	9L & 9R	-	1,000	-	-	-	1,000	-	-
2D	9L & 9R	-	-	-	1,250	-	-	-	1,250
2D	15L & 15R	-	850	-	1,000	-	850	-	1,000
2.5D	V	-	-	-	-	-	-	-	-
2.5D	12L & 12R	-	-	-	-	-	-	-	-
4D	V	7,000	-	10,000	-	-	-	-	-
4D	4R	12,500	-	12,500	-	12,500	-	12,500	-
4D	20L & 20R	-	-	-	300	-	-	-	300

<sup>(1)</sup> These test points are boundaries, intensity values within this boundary must meet the listed photometry requirement.

Figure 1 - Table XIX-a Headlight Intensity for LB2V

The US Food and Drug Administration is the only federal agency which is Congressionally authorized and mandated to set performance standards for electromagnetic radiation emitted by

electronic products. This includes LED headlights, LED brake lights, LED Daytime Running Lights, LED flashing lights, and LED displays on vehicles. As per 21 U.S.C. 360ii, the FDA is required to collaborate with NHTSA to develop and publish these performance standards, and yet NHTSA is not reaching out to the FDA and the FDA is not contacting NHTSA to initiate the collaboration. Thus, there is no action by any federal agency to set limits for LED vehicle lights to protect public comfort, health, safety, and civil rights.

We ask that you direct NHTSA Acting Director Sophie Shulman to collaborate with the FDA to vet and develop performance standards for LED vehicle lighting systems to ensure public comfort, health, safety, and civil rights, to approve the February 24, 2024 Soft Lights Foundation citizen petition to NHTSA to set an overall limit on low-beam headlight intensity<sup>2</sup>, and to require that NHTSA publish a Notice of Proposed Rulemaking for performance standards for all vehicle lighting systems no later than June 15, 2025.

Sincerely,

/s/ Mark Baker

President

Soft Lights Foundation

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[www.softlights.org](http://www.softlights.org)

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<sup>2</sup> <https://www.softlights.org/wp-content/uploads/2024/03/NHTSA-Petition-to-Limit-Headlight-Intensity.pdf>