



DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

[Docket No. NHTSA-2024-0019; Notice 2]

Tesla, Inc., Denial of Petition for Decision of Inconsequential Noncompliance

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation (DOT).

ACTION: Denial of petition

SUMMARY: Tesla, Inc. (Tesla) has determined that certain model year (MY) 2017-2023 Tesla Model 3 and Tesla Model Y motor vehicles do not fully comply with Federal Motor Vehicle Safety Standard (FMVSS) No. 108, *Lamps, Reflective Devices, And Associated Equipment*. Tesla filed a noncompliance report dated March 15, 2024, and subsequently petitioned NHTSA (the “Agency”) on April 8, 2024, and amended its petition on May 3, 2024, for a decision that the subject noncompliance is inconsequential as it relates to motor vehicle safety. This document announces the denial of Tesla’s petition.

FOR FURTHER INFORMATION CONTACT: Kelley Adams-Campos, Safety Compliance Engineer, NHTSA, Office of Vehicle Safety Compliance, (202) 366-7479.

SUPPLEMENTARY INFORMATION:

I. Overview: Tesla determined that certain MY 2017-2023 Tesla Model 3 and MY 2020-2023 Tesla Model Y motor vehicles do not fully comply with paragraph S10.14.6 of FMVSS No. 108, *Lamps, Reflective Devices, And Associated Equipment* (49 CFR 571.108).

Tesla filed a noncompliance report dated March 15, 2024, pursuant to 49 CFR part 573, *Defect and Noncompliance Responsibility and Reports*. Tesla petitioned NHTSA on April 9, 2024, for an exemption from the notification and remedy requirements of 49 U.S.C. Chapter 301 on the basis that this noncompliance is inconsequential as it relates to motor vehicle safety,

pursuant to 49 U.S.C. 30118(d) and 30120(h) and 49 CFR part 556, *Exemption for Inconsequential Defect or Noncompliance*.

Notice of receipt of Tesla's petition was published with a 30-day public comment period, on July 26, 2024, in the Federal Register (89 FR 60682). Two comments were received. To view the petition, the comments, and all supporting documents log onto the Federal Docket Management System (FDMS) website at <https://www.regulations.gov/>. Then follow the online search instructions to locate docket number "NHTSA-2024-0019."

II. Vehicles Involved: Approximately 19,917 MY 2017-2023 Tesla Model 3 and MY 2020-2023 Tesla Model Y motor vehicles, manufactured between October 27, 2017, and December 24, 2023, were reported by the manufacturer.

III. Rule Requirements: Paragraph S10.14.6 of FMVSS No. 108 includes the requirements relevant to this petition. Specifically, when tested according to the test procedure provided by paragraph S14.2.5 of FMVSS No. 108, each integral beam headlamp must be designed to conform to the photometry requirements of Table XIX of FMVSS No. 108 for lower beam, as specified in Table II-c for the specific headlamp unit and aiming method. As it relates to this petition, the maximum photometric intensity allowed in the 10°U to 90°U and 90°L to 90°R zone for the lower beam is 125 cd.

IV. Noncompliance: Tesla explains that the subject vehicles are equipped with headlamps that have a low-beam output that do not comply with the photometric requirements stated in paragraph S10.14.6 of FMVSS No. 108. Specifically, the affected right and left-hand headlamp lower beams may measure as much as 230.1 candela (cd) in the 10°U to 90°U and 90°L to 90°R zone, which exceeds the maximum photometric intensity allowed by 105.1 cd.

V. Summary of Tesla's Petition: The following views and arguments presented in this section, "V. Summary of Tesla's Petition," are the views and arguments provided by Tesla. They do not reflect the views of the Agency. Tesla describes the subject noncompliance and contends that the noncompliance is inconsequential as it relates to motor vehicle safety.

Tesla's headlamp supplier, Marelli Automotive Lighting, tested 25 right-hand and 25 left-hand lamps, and for this sample, found the maximum photometric intensity measured in the 10°U to 90°U and 90°L to 90°R zone was between 136.2 cd and 230.1 cd for the right-hand lamps and between 117.5 cd and 160.3 cd for the left-hand lamps. According to Tesla, these tests revealed that the photometric intensity of the right-hand and left-hand headlamp lower beam on the subject vehicles may measure as much as 230.1 cd in the 10°U to 90°U and 90°L to 90°R zone, exceeding the maximum photometric intensity by 105.1 cd. Additionally, Tesla states that a left-hand lamp tested by a Transport Canada recognized laboratory measured a maximum of 171.27 cd in the 10°U to 90°U and 90°L to 90°R zone. Despite these measurements exceeding the allowed photometric maximum of 125 cd, Tesla believes that the subject noncompliance is inconsequential to motor vehicle safety.

Tesla argues that the noncompliant illuminated area of the subject headlamp in the 10°U to 90°U and 90°L to 90°R zone is positioned off the roadway both horizontally and vertically, keeping it outside of the driver's or other road users' natural line of vision. Therefore, Tesla believes there is no increased risk of glare for surrounding traffic or the driver of the subject vehicle in any driving condition.

Tesla's petition provides a plan, side, and orthogonal view (Figure 1) of the emitted light exceeding 125 cd overlaid onto the 10°U to 90°U and 90°L to 90°R zone. The noncompliant area falls in the 30° inboard and 20° upward area of the zone respectively for both the left-hand headlamp and the right-hand headlamp.

Figure 2 in Tesla's petition shows the subject noncompliance from the view of the driver of the subject vehicle. Tesla explains that it simulated the illumination of the noncompliant 10°U to 90°U and 90°L to 90°R zone to demonstrate how the subject noncompliance affects the roadway from the view of the driver of the subject vehicle. The simulation in Figure 2 shows that the left-hand headlamp exceeds the maximum 125 cd by 35.3 cd (totaling 160.3 cd), while the right-hand headlamp exceeds it by 105.1 cd (totaling 230.1 cd). Tesla explains that these

figures represent the largest measurements from the 25 sets of headlamps tested by Marelli Automotive Lighting.

Tesla asserts that the area illuminated by the noncompliant headlamps in the 10°U to 90°U and 90°L to 90°R zone does not affect the driver of the subject vehicle because its high and outboard position falls outside the driver's line of vision.¹ Furthermore, Tesla believes that this illuminated area does not impact the field of vision of oncoming drivers or other road users due to its extreme location. The light from the subject headlamp in this zone is projected away from the roadway. Therefore, Tesla argues that the subject noncompliance is inconsequential as it relates to motor vehicle safety.

On May 3, 2024, Tesla amended its petition to provide details of the low beam testing it conducted. Using the Adaptive Driving Beam (ADB) protocol test method provided in FMVSS No. 108, S14.9.3.12, Tesla conducted low beam tests on a proving ground. Tesla explains that the study aimed to characterize and quantify the low beam glare in the 10°U to 90°U zone on the subject vehicles compared to the same vehicles equipped with compliant headlamps. Specifically, the test involved one Model 3 and one Model Y vehicle, each equipped with the noncompliant left-hand and right-hand headlamps that exceeded the FMVSS No. 108 maximum permissible candela in the 10°U to 90°U and 90°L to 90°R zone. Tesla followed the test procedure described in Scenario #1 of FMVSS No. 108, Table XXII, at 60 mph and opposite direction.

Tesla argues that meeting the low beam maximum illuminance for adaptive driving beam photometry as detailed in Table XXI of FMVSS No. 108, despite having noncompliant headlamps, makes the noncompliance at issue inconsequential to motor vehicle safety. This, according to Tesla, ensures that drivers of vehicles equipped with the subject headlamps or other road users would not experience glare or distraction from them.

¹ Refer to Figure 1 of the petition for a visual.

Tesla, in its amended petition, says that the subject vehicles did not exceed the permitted maximum illuminance values required by FMVSS No. 108, Table XXI. Tesla believes that these test results demonstrate that the subject noncompliance does not create glare for the driver of the subject vehicle or other road users. Therefore, Tesla contends that the noncompliance is inconsequential as it relates to motor vehicle safety.

Tesla has not found any complaints or reports of accidents or injuries related to this noncompliance in its records or NHTSA Vehicle Owner Questionnaires. Tesla also adds that it is not aware of any complaints, accidents, or injuries related to the subject noncompliance.

While Tesla acknowledges that this fact is not dispositive in the consideration of a petition for inconsequential noncompliance, it mentions this to illustrate that customers have not reported issues such as excessively bright or glaring headlamps, and no accidents or injuries have been attributed to the subject headlamps.²

Tesla distinguishes its petition from a 2022 petition denial to General Motors, LLC, (GM) in which Tesla claims GM argued that certain noncompliant replaceable bulb lower beam headlamps exceeding the photometry requirements of S10.15.6 and Table XIX of FMVSS No. 108 were inconsequential to motor vehicles safety.³ While Tesla's noncompliant lamps are an integral beam headlamp, integral beam headlamps follow similar photometry requirements to GM's replaceable bulb headlamps. Tesla explains that GM could not demonstrate that the noncompliant headlamps, which measured 450-470 cd and exceeded the photometric maximum by more than three times, did not cause glare or were not distracting to other road users. (*Id.*) Tesla believes that the subject noncompliance is distinguishable from GM's petition because the subject headlamps measure 230.1 cd at most. Tesla also uses the ADB-protocol testing it

² See North American Subaru, Inc., Denial of Petition for Decision of Inconsequential Noncompliance; 87 FR 48764, August 10, 2022

³ See General Motors, LLC, Denial of Petition for Decision of Inconsequential Noncompliance; 87 FR 12546, March 4, 2022

conducted to distinguish its petition from the GM petition by demonstrating that it believes the subject noncompliance does not create glare for the driver or other road users.

Tesla concludes by stating its belief that the subject noncompliance is inconsequential as it relates to motor vehicle safety and its petition to be exempted from providing notification of the noncompliance, as required by 49 U.S.C. 30118, and a remedy for the noncompliance, as required by 49 U.S.C. 30120, should be granted.

VI. Public Comments: NHTSA received two comments regarding Tesla's petition. The first commenter expressed concern that the subject vehicles are equipped with lower beam headlamps that produce significant glare, causing lingering spots in their vision after exposure. The commenter further noted that these vehicles are prevalent in their area and requested relief from the excessive glare.

The second commenter expressed the belief that the manufacturer did not successfully demonstrate that the subject noncompliance is inconsequential to motor vehicle safety. The commenter stated that the arguments and data provided in the petition are "not relevant, incomplete and unconvincing." The commenter provided their own views, and arguments to support their belief that Tesla's petition should be denied. First, the commenter stated that Tesla underestimates the severity or maximum candela of the subject noncompliance. The commenter stated that the data Tesla provides regarding the testing of 25 sets of affected headlamps does not support its conclusion that the maximum photometric intensity is 230.1 cd because there is nearly a 100 percent defect rate in the 25 sets of headlamps and the sample population size is relatively small. The commenter elaborated that the mean and standard deviation of the sample population are not reported in Tesla's petition and if that data were reported then statistical process capability estimates could be made of the affected population, and it would be clear that 230.1 is not the maximum photometric intensity of the subject noncompliance in the overall population.

Second, the commenter stated that Tesla's arguments concerning the subject noncompliance occurring outside the driver and other road users' line of vision are not relevant because the purpose of the 10 degrees up to 90 degrees up and 90 degrees left to 90 degrees right test points is not to prevent direct line of vision glare. The commenter pointed out that the purpose of these test points is to prevent veiling glare or back scatter of light to the driver in adverse weather conditions such as rain, fog, snow, and smog. The commenter noted that Tesla does not provide test data on the subject noncompliance's impact in these adverse weather conditions.

Next, the commenter stated that the ADB testing and conclusions are most relevant but are "misleading and incomplete." The commenter stated that the purpose of the ADB maximum illumination values provided in Table XXI of FMVSS No. 108 is to evaluate direct glare light, not veiling glare light; further, the photometric intensity limits and illumination detector positions were not designed to detect veiling glare nor direct glare in the region of the 10 degrees up to 90 degrees up and 90 degrees left to 90 degrees right test points relevant to this petition. The commenter noted that Tesla's argument is also unpersuasive because only the first of eight (8) total scenarios provided in FMVSS No. 108 was tested, and, even without considering the ADB illumination detector vertical and horizontal angular limitations, if all scenarios had been tested, the other curve scenarios may have been more severe than the one tested because that one represents a straight road. The commenter asserted that, therefore, Tesla's ADB argument is incomplete.

Last, the commenter stated that even without consumer complaints or reports of accidents or injuries related to the subject noncompliance, the impact of real-world direct and veiling glare is a given because of the nature of higher intensity light above the horizon exceeding regulatory limits. The commenter pointed out that there are too many contributors to real-world glare for cause and effect to be assigned, and these glare instances mainly occur at night when road users would likely look away and not try to identify the make, model, and year of the vehicle or find

the specific cause and whether it came from glare test point maximum exceedance, misaim, road surface pitch, vehicle loading, etc. The commenter stated that observations would fall under the same common NHTSA consumer complaint umbrella of “too much headlamp glare.”

VII. NHTSA’s Analysis: In determining inconsequentiality of a noncompliance, NHTSA focuses on the safety risk to individuals who experience the type of event against which a recall would otherwise protect.⁴ In general, NHTSA does not consider the absence of complaints or injuries when determining if a noncompliance is inconsequential to safety. The absence of complaints does not mean vehicle occupants have not experienced a safety issue, nor does it mean that there will not be safety issues in the future.⁵ Complaints are typically submitted to NHTSA via a form⁶ or verbal report to the NHTSA vehicle safety hotline⁷ and those complaints are published on the NHTSA website.⁸ While no reports of glare associated with the subject vehicles were received via a form or verbal report to the NHTSA vehicle safety hotline prior to the comment period, NHTSA did receive one comment from the public during the comment period stating that they have experienced glare from what the Agency believes to be the subject vehicle(s). NHTSA considers this comment as a customer complaint as it relates to this petition. NHTSA received one other comment from the public, and NHTSA concurs with the commenter’s points as it relates to this petition. Specifically, NHTSA agrees with the commenter’s analysis of Tesla’s arguments as described in this decision notice. In addition, NHTSA has previously received and ruled on a petition requesting NHTSA to issue an order of

⁴ See *Gen. Motors, LLC; Grant of Petition for Decision of Inconsequential Noncompliance*, 78 FR 35355 (June 12, 2013) (finding noncompliance had no effect on occupant safety because it had no effect on the proper operation of the occupant classification system and the correct deployment of an air bag); *Osram Sylvania Prods. Inc.; Grant of Petition for Decision of Inconsequential Noncompliance*, 78 FR 46000 (July 30, 2013) (finding occupant using noncompliant light source would not be exposed to significantly greater risk than occupant using similar compliant light source).

⁵ See *Morgan 3 Wheeler Limited; Denial of Petition for Decision of Inconsequential Noncompliance*, 81 FR 21663, 21666 (Apr. 12, 2016); see also *United States v. Gen. Motors Corp.*, 565 F.2d 754, 759 (D.C. Cir. 1977) (finding defect poses an unreasonable risk when it “results in hazards as potentially dangerous as sudden engine fire, and where there is no dispute that at least some such hazards, in this case fires, can definitely be expected to occur in the future”).

⁶ <https://www.nhtsa.gov/report-a-safety-problem>

⁷ NHTSA Vehicle Safety Hotline 888-327-4236

⁸ <https://www.nhtsa.gov/recalls>

noncompliance related to headlamp glare in MY 2021 Tesla Model 3 vehicles, among others.⁹

While NHTSA disagreed with the petitioner's argument that LED headlamps are *de facto* noncompliant with FMVSS No. 108, the petition nonetheless complained of excessive glare from MY 2021 Tesla Model 3 vehicles. Further, because each inconsequential noncompliance petition must be evaluated on its own facts and determinations are highly fact-dependent, NHTSA does not consider prior determinations as binding precedent. In this instance, Tesla determined that there was in fact a noncompliance.

NHTSA disagrees with Tesla's conclusion that there is no increased risk of glare for surrounding traffic or the driver of the subject vehicle in any driving conditions. NHTSA believes, as previously stated in the GM petition also referenced by Tesla, that the purpose of having a maximum of 125 cd at test points 10 degrees up to 90 degrees up and 90 degrees left to 90 degrees right is to reduce the presence of glare and veiling glare¹⁰ from oncoming or surrounding vehicles. Certain weather conditions such as rain, snow, and fog could result in light from the noncompliant lamps causing veiling glare to the driver or other road users driving in the proximity of the vehicle having the noncompliant lamp(s).

NHTSA finds that the subject petition is similar to GM's petition, in that in both cases, the noncompliance exceeded the maximum requirement in the zone bounded by 10 degrees up to 90 degrees up and 90 degrees left to 90 degrees right. Regardless of the difference in amount of exceedance and different locations in the 10 degrees up to 90 degrees up and 90 degrees left to 90 degrees right zone, Tesla has not provided any argument, evidence, or justification that indicates the subject noncompliance would not cause veiling glare to the driver or other road users as mentioned previously.

⁹ See Soft Lights Foundation, Denial of Petition for Decision of Non-Compliance Order; 87 FR 75327, December 8, 2022.

¹⁰ Veiling glare or veiling reflection is defined by the Illuminating Engineering Society (IES) to be a regular (specular) reflection, superimposed on diffuse reflection from an object, that partially or totally obscures the details to be seen by reducing the contrast. This sometimes is called reflected glare. Another kind of veiling reflection occurs when one looks through a pane of glass. A reflected image of a bright element or surface may be seen superimposed on what is viewed through the glass pane. <https://www.ies.org/definitions/veiling-reflection/>. Accessed 14 November 2024.

NHTSA does not believe the additional ADB-protocol testing conducted by Tesla indicates that the subject noncompliance is inconsequential to safety and does not create glare for the driver or other road users. The additional ADB-protocol testing only considers glare directed at other road users in a single scenario with ideal driving conditions where the sky is clear and the road is dry. This additional testing is, therefore, insufficient to persuade the Agency that the subject noncompliance will not cause glare to other drivers or road users during adverse weather conditions such as rain, snow, and fog. Regardless, the ADB-protocol testing conditions¹¹ are not intended to evaluate glare as a result of the subject noncompliance.

VIII. NHTSA's Decision: In consideration of the foregoing, NHTSA has decided that Tesla has not met its burden of persuasion that the subject FMVSS No. 108 noncompliance is inconsequential to motor vehicle safety. Accordingly, Tesla's petition is hereby denied, and Tesla is consequently obligated to provide notification of and free remedy for that noncompliance under 49 U.S.C. 30118 and 30120.

(Authority: 49 U.S.C. 30118, 30120; delegations of authority at 49 CFR 1.95 and 501.8)

Eileen Sullivan,

Associate Administrator for Enforcement.

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¹¹ In addition to the track testing required for ADB lamps, the standard also requires ADB lamps to meet laboratory test requirements as specified in S9.4.1.6.4.3 of FMVSS No. 108 which the subject lamp fails to meet.