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DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

Petition for Exemption from the Federal Motor Vehicle Motor Theft Prevention Standard; TESLA

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

ACTION: Grant of petition for exemption.

SUMMARY: This document grants in full the petition of Tesla Motors Inc's. (Tesla) for an exemption of the Model S vehicle line in accordance with 49 CFR Part 543, Exemption from the Theft Prevention Standard. This petition is granted, because the agency has determined that the antitheft device to be placed on the line as standard equipment is likely to be as effective in reducing and deterring motor vehicle theft as compliance with the parts-marking requirements of the Theft Prevention Standard 49 CFR Part 541, Federal Motor Vehicle Theft Prevention Standard. Tesla requested confidential treatment for specific information in its petition. The agency granted Tesla's request for confidential treatment by a letter dated December 5, 2011.

DATES: The exemption granted by this notice is effective beginning with the 2012 model year (MY).

FOR FURTHER INFORMATION CONTACT: Ms. Carlita Ballard, Office of International Policy, Fuel Economy and Consumer Standards, NHTSA, W43-439, 1200 New Jersey Avenue, S.E., Washington, D.C. 20590. Ms. Ballard's phone number is (202) 366-5222. Her fax number is (202) 493-2990.

SUPPLEMENTARY INFORMATION: In a petition dated October 24, 2011, Tesla requested an exemption from the parts-marking requirements of the theft prevention standard (49 CFR Part 541) for the Model S vehicle line beginning with MY 2012. The petition requested an exemption from parts-marking pursuant to 49 CFR 543, Exemption from Vehicle Theft Prevention Standard, based on the installation of an antitheft device as standard equipment for the entire vehicle line.

Under §543.5(a), a manufacturer may petition NHTSA to grant an exemption for one vehicle line per model year. In its petition, Tesla provided a detailed description and diagram of the identity, design and location of the components of the antitheft device for the Model S vehicle line. Tesla will install a passive, transponder-based, electronic engine immobilizer device as standard equipment on its Model S vehicle line beginning with MY 2012. Key components of the antitheft device include an engine immobilizer, security controller, gateway function, drive inverter and a passive entry transponder (PET). Tesla stated that its immobilizer device, which will be installed beginning with its MY 2012 vehicle line, will be an upgraded version with a more robust design than the antitheft device already installed as standard equipment on its MYs 2008 - 2011 Tesla roadsters. Tesla stated that the new design of its immobilizer device will have enhanced communications between components, prevent tampering and also provide additional features to enhance its overall effectiveness.

In addition to Tesla's immobilizer device, an audible alarm (horn) will be incorporated as standard equipment, but no visual feature will be provided with the alarm system. Tesla stated that its alarm system will activate with any unauthorized attempt to break in the front and rear cargo areas. Tesla also stated that any unauthorized entry without the correct PET will trigger

the audible alarm. Tesla stated that its antitheft device has a two-step activation process with a vehicle code query being conducted at each stage. The first stage allows access to the vehicle when an authorization cycle occurs between the PET and the Security Controller as long as the PET is in close proximity to the car and the driver either pushes the lock/unlock button on the key fob, pushes the exterior door handle to activate the handle sensors or inserts a hand into the handle to trigger the latch release. During the second stage, vehicle operation will be enabled when the driver has depressed the brake pedal and moves the gear selection stalk to drive or reverse. When one of these actions is performed, the security controller will poll to verify if the appropriate PET is inside the vehicle. Upon location of the PET, the security controller will run an authentication cycle with the key confirming the correct PET is being used inside the vehicle. Tesla stated that once authentication is successful, the security controller initiates an encrypted message through the gateway enabling the drive inverter to receive the encrypted message which then processes the message generating an encrypted response posting the message back to the security controller. If the encrypted exchange yields a result that meets the security code's expectations of the security controller, the correct exchange will authorize the drive inverter to deactivate immobilization allowing the vehicle to be driven under its own power. Tesla stated that if the results are not correct and there is no response to the drive inverter from the security controller, the vehicle will remain immobilized and the drive inverter will retry the exchange until there is a proper response or it times out. Tesla's submission is considered a complete petition as required by 49 CFR 543.7 in that it meets the general requirements contained in 543.5 and the specific content requirements of 543.6.

Tesla stated that the immobilizer functions will ensure maximum theft protection when

the immobilizer is active, the vehicle is off and the doors are locked. Tesla stated that it will incorporate an additional security measure that performs when the car is unlocked and immobilization is deactivated. Specifically, immobilization will reactivate when there are no user inputs to the vehicle within a programmed period of time. Tesla stated that any attempt to operate the vehicle without performing and completing each task, will render the vehicle inoperable.

In addressing the specific content requirements of 543.6, Tesla provided information on the reliability and durability of its proposed device. To ensure reliability and durability of the device, Tesla conducted tests based on its own specified standards. Tesla provided a detailed list of the test conducted and stated that it believes that its device is reliable and durable because it complied with its own specific design standards. Additionally, Tesla stated that it has incorporated other measures of ensuring reliability and durability of the device. Those measures include the inaccessible location of all immobilizer device components within the passenger compartment of the vehicle or their containment in other vehicle components. Tesla stated that these measures protect the immobilizer device from exposure to the elements and limit its access by unauthorized persons. Additionally, Tesla stated that the immobilizer relies on electronic functions versus mechanical functions and therefore expects the components to last at least the life of the vehicle.

Tesla also compared the device proposed for its vehicle line with other devices which NHTSA has already determined to be as effective in reducing and deterring motor vehicle theft as would compliance with the parts-marking requirements of the Theft Prevention Standard. Tesla compared the BMW 5 series and the Mercedes-Benz E-Class to its Model S vehicle line.

Specifically, the agency's data show that theft rates for the BMW 5 series are 0.9044, 0.6550 and 0.4098 and for the Mercedes-Benz E-Class, 0.5898, 0.6286 and 0.9041 respectively. Using an average of 3 MYs data (2007-2009), the agency theft rate data show that the average theft rate for the BMW 5 series is 0.6564 and 0.7075 for the Mercedes-Benz E-Class, well below the median theft rate of 3.5826. Tesla also stated that its 2008 – 2011 roadsters are already equipped with an antitheft device as standard equipment. Agency theft rate data for the roadster vehicles using an average of the most current theft rate data available is 0.0000.

Based on the evidence submitted by Tesla, the agency believes that the antitheft device for the Model S vehicle line is likely to be as effective in reducing and deterring motor vehicle theft as compliance with the parts-marking requirements of the Theft Prevention Standard (49 CFR 541).

Pursuant to 49 U.S.C. 33106 and 49 CFR 543.7 (b), the agency grants a petition for exemption from the parts-marking requirements of Part 541, either in whole or in part, if it determines that, based upon substantial evidence, the standard equipment antitheft device is likely to be as effective in reducing and deterring motor vehicle theft as compliance with the parts-marking requirements of Part 541. The agency finds that Tesla has provided adequate reasons for its belief that the antitheft device for the Model S vehicle line is likely to be as effective in reducing and deterring motor vehicle theft as compliance with the parts-marking requirements of the Theft Prevention Standard (49 CFR Part 541). This conclusion is based on the information Tesla provided about its device.

The agency concludes that the device will provide the five types of performance listed in §543.6(a)(3): promoting activation, attracting attention to the efforts of an unauthorized person

to enter or move a vehicle by means other than a key, preventing defeat or circumvention of the device by unauthorized persons, preventing operation of the vehicle by unauthorized entrants and ensuring the reliability and durability of the device

For the foregoing reasons, the agency hereby grants in full Tesla's petition for exemption for the Model S vehicle line from the parts-marking requirements of 49 CFR Part 541, beginning with the 2012 model year vehicles. The agency notes that 49 CFR Part 541, Appendix A-1, identifies those lines that are exempted from the Theft Prevention Standard for a given MY. 49 CFR Part 543.7(f) contains publication requirements incident to the disposition of all Part 543 petitions. Advanced listing, including the release of future product nameplates, the beginning model year for which the petition is granted and a general description of the antitheft device is necessary in order to notify law enforcement agencies of new vehicle lines exempted from the parts marking requirements of the Theft Prevention Standard.

If Tesla decides not to use the exemption for this line, it shall formally notify the agency. If such a decision is made, the line must be fully marked according to the requirements under 49 CFR Parts 541.5 and 541.6 (marking of major component parts and replacement parts).

NHTSA notes that if Tesla wishes in the future to modify the device on which this exemption is based, the company may have to submit a petition to modify the exemption. Part 543.7(d) states that a Part 543 exemption applies only to vehicles that belong to a line exempted under this part and equipped with the antitheft device on which the line's exemption is based. Further, Part 543.9(c)(2) provides for the submission of petitions "to modify an exemption to permit the use of an antitheft device similar to but differing from the one specified in that exemption."

The agency wishes to minimize the administrative burden that Part 543.9(c)(2) could place on exempted vehicle manufacturers and itself. The agency did not intend in drafting Part 543 to require the submission of a modification petition for every change to the components or design of an antitheft device. The significance of many such changes could be *de minimis*. Therefore, NHTSA suggests that if the manufacturer contemplates making any changes, the effects of which might be characterized as *de minimis*, it should consult the agency before preparing and submitting a petition to modify.

Authority: 49 U.S.C. 33106; delegation of authority at 49 CFR 1.50.

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Christopher J. Bonanti
Associate Administrator for
Rulemaking

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