



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, Department of Transportation (DOT).

ACTION: Grant of petition for exemption.

SUMMARY: This document grants in full the petition of Tesla Motors Inc's., (Tesla) petition for an exemption of the Model 3 vehicle line in accordance with the Exemption from Vehicle 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 Federal Motor Vehicle Theft Prevention Standard (Theft Prevention Standard). Tesla also requested confidential treatment for specific information in its petition. While official notification on granting or denying Tesla's request for confidential treatment will be addressed by separate letter, no confidential information provided for purposes of this document has been disclosed.

DATES: The exemption granted by this notice is effective beginning with the 2017 model year (MY).

FOR FURTHER INFORMATION CONTACT: Mr. Hisham Mohamed, Office of International Policy, Fuel Economy and Consumer Standards, NHTSA, W43-437, 1200 New Jersey Avenue, SE, Washington, DC 20590. Mr. Mohamed's phone number is (202) 366-0307.

His fax number is (202) 493-2990.

SUPPLEMENTARY INFORMATION: In a petition dated September 16, 2016, Tesla requested an exemption from the parts-marking requirements of the Theft Prevention Standard for the Model 3 vehicle line beginning with MY 2017. The petition requested an exemption from parts-marking pursuant to 49 CFR part 543, Exemption from Vehicle Theft Prevention Standard, based on the installation of an antitheft device as standard equipment for the entire vehicle line.

Under 49 CFR 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 3 vehicle line. Tesla proposes to install a passive, transponder-based, electronic engine immobilizer device as standard equipment on its Model 3 vehicle line beginning with its MY 2017 vehicles. Key components of the antitheft device include an engine immobilizer, central body controller, security controller, gateway function, drive inverters and a passive entry transponder (PET). Tesla also stated that the antitheft device is an upgraded version of the successful antitheft device currently installed as standard equipment on all Tesla Model S/X vehicles, and served as the basis for NHTSA's earlier granting of an exemption for that vehicle line. Tesla also noted that improvements to the existing antitheft device include a new coded exchange between the drive inverters and central body controller and, enhanced security communication between its components. Tesla further stated that its antitheft device will be installed with an audible alarm system as standard equipment on the entire line. Tesla stated that forced entry into the vehicle or any type of unauthorized entry without the correct PET will

trigger an audible alarm. Tesla further stated that in addition to an unauthorized access through the doors, the alarm will also trigger when a break-in is attempted through both the front and rear cargo areas.

Tesla explained that its antitheft device will have a two-step activation process with a vehicle code query 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 sits in the driver's seat and has depressed the brake pedal. The driver can then move 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 a coded message through the gateway. If the code exchange matches the code stored in the drive inverters, the exchange will authorize the drive inverter to deactivate immobilization and allow the vehicle to be driven under its own power. Tesla stated that the immobilizer is active when the vehicle is turned off and the doors are locked. Any attempt to operate the vehicle without performing and completing each task will render the vehicle inoperable. Additionally, Tesla has incorporated an additional security measure to protect its Model 3 vehicle line. Tesla stated that when there are no user inputs to the vehicle within a programmed period of time, immobilization of the antitheft device will be reactivated, even if the

car is unlocked or has the antitheft device has already been deactivated.

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.

In addressing the specific content requirements of §543.6, Tesla provided information on the reliability and durability of its proposed device. Tesla stated that all components of its antitheft device are contained inside the vehicle's passenger compartment in locations not readily accessible, or are contained within other vehicle components. Tesla stated that this will protect the antitheft device from exposure to the elements as well as significantly limit accessibility to those components by unauthorized personnel. Additionally, Tesla stated that it expects the components of the antitheft device to be reliable because the antitheft device relies on electronic functions and not mechanical functions. Tesla also provided the agency with a reliability engineering test report. Tesla believes the report provides sufficient reliability and durability information as required by 49 CFR 543.6(a)(1)(v). Tesla stated that the reliability and durability testing completed on its Tesla Model 3 Security Controller PCBA has shown to meet the requirements based on Tesla Reliability Testing and Validation Specification and the Model 3 product launch reliability targets.

Tesla stated that the Model 3 antitheft device will be similar to the version designed to deter theft of its Model S and X vehicles. It noted that similar to the Model S and X vehicle lines, its antitheft device requires coded communication between the security controller and drive inverters. Tesla further stated that even gaining access to the 12V power supply to the Security Controller or Gateway will not allow a thief to bypass the system because only inputs from a

correct code can deactivate the system and allow the vehicle to function. Tesla also stated that it expects the Model 3 vehicle line to achieve very, low theft rates with the installation of its antitheft immobilizer device. Tesla further stated it believes that having a powerful antitheft device, with electronic locks and an alarm system installed on its Model 3 vehicle line strongly indicates that its Model 3 vehicle line will have significantly lower theft rates than comparable vehicles that have only been parts marked in accordance with 49 CFR part 541.

Comparatively, Tesla stated that the antitheft device proposed for its Model 3 vehicle line is similar to other antitheft devices which NHTSA has already determined to be as effective in reducing and deterring motor vehicle theft as the parts marking requirements (i.e., the Tesla Model S and X vehicle lines). Specifically, the agency's data show that using an average of 3 MY's (final 2012-2013 and preliminary 2014) theft rate data, the average theft rate for the Tesla Model S vehicle line is (0.1123), which is well below the median theft rate of 3.5826. There is no theft rate data available for the Model X vehicle line because it is a newly introduced vehicle.

Based on the evidence submitted by Tesla, the agency believes that the antitheft device for the Model 3 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 3 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. 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; attract 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 3 vehicle line from the parts-marking requirements of 49 CFR part 541, beginning with the 2017 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 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 should formally notify the agency. If such a decision is made, the line must be fully marked according to the requirements under 49 CFR 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.

Section 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, §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 §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 CFR 1.95

Raymond R. Posten,
Associate Administrator for Rulemaking.

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