



**June 23, 2020**

**CERTIFIED MAIL**  
**RETURN RECEIPT REQUESTED**

Mr. Al Prescott  
Deputy General Counsel  
Tesla, Inc.  
3550 Deer Creek Rd.  
Palo Alto, CA 94304

NEF-104aa  
PE20-010

Dear Mr. Prescott:

This letter is to inform you that the Office of Defects Investigation (ODI) of the National Highway Traffic Safety Administration (NHTSA) has opened Preliminary Evaluation (PE20-010) to investigate allegations of touchscreen/media control unit (MCU) failures in model year (MY) 2012 through 2015 Model S vehicles manufactured by Tesla, Inc., and to request certain information.

This office has received 11 complaints alleging MCU failures in MY 2012 through 2015 Model S vehicles, resulting in a black touchscreen display. Failure of the touchscreen/MCU results in loss of the rear camera image display when reverse gear is selected, reducing rear visibility in backing maneuvers. A copy of each of the reports has been provided to Tesla in a previous communication.

Unless otherwise stated in the text, the following definitions apply to these information requests:

- **Subject vehicles**: all MY 2012 through 2015 Tesla Model S vehicles manufactured for sale or lease in the United States and federalized territories.
- **Peer vehicles**: all MY 2016 through 2018 Tesla Model S and Model X vehicles equipped with subject MCU's and manufactured for sale or lease in the United States and federalized territories.
- **Subject component**: all MCU's manufactured with NVIDIA Tegra 3 display control unit processors for use as original equipment or service parts on the subject vehicles.
- **Subject eMMC**: all embedded multi-media cards (eMMC) used in the subject components.

- **Alleged defect:** all failures or malfunctions of the MCU resulting in any one or more of the following symptoms or conditions:
  1. Loss of rear-view image with reverse gear selected;
  2. MCU failure with loss of touchscreen display image; or
  3. All other allegations of MCU failure that may be related to eMMC memory wear out.
  
- **Tesla:** Tesla, Inc. and all of its past and present officers and employees, whether assigned to its principal offices or any of its field or other locations, including all of its divisions, subsidiaries (whether or not incorporated) and affiliated enterprises and all of their headquarters, regional, zone and other offices and their employees, and all agents, contractors, consultants, attorneys and law firms and other persons engaged directly or indirectly (e.g., employee of a consultant) by or under the control of Tesla (including all business units and persons previously referred to), who are or, in or after January 10, 2010, were involved in any way with any of the following related to the alleged defect in the subject vehicles:
  - a. Design, engineering, analysis, modification or production (e.g. quality control);
  - b. Testing, assessment or evaluation;
  - c. Consideration, or recognition of potential or actual defects, reporting, record-keeping and information management, (e.g., complaints, field reports, warranty information, part sales), analysis, claims, or lawsuits; or
  - d. Communication to, from or intended for zone representatives, fleets, dealers, or other field locations, including but not limited to people who have the capacity to obtain information from dealers.
  
- **Document:** “Document(s)” is used in the broadest sense of the word and shall mean all original written, printed, typed, recorded, or graphic matter whatsoever, however produced or reproduced, of every kind, nature, and description, and all non-identical copies of both sides thereof, including, but not limited to, papers, letters, memoranda, correspondence, communications, electronic mail (e-mail) messages (existing in hard copy and/or in electronic storage), faxes, mailgrams, telegrams, cables, telex messages, notes, annotations, working papers, drafts, minutes, records, audio and video recordings, data, databases, other information bases, summaries, charts, tables, graphics, other visual displays, photographs, statements, interviews, opinions, reports, newspaper articles, studies, analyses, evaluations, interpretations, contracts, agreements, jottings, agendas, bulletins, notices, announcements, instructions, blueprints, drawings, as-builts, changes, manuals, publications, work schedules, journals, statistical data, desk, portable and computer calendars, appointment books, diaries, travel reports, lists, tabulations, computer printouts, data processing program libraries, data processing inputs and outputs, microfilms, microfiches, statements for services, resolutions, financial statements, governmental records, business records, personnel records, work orders, pleadings, discovery in any form, affidavits, motions, responses to discovery, all transcripts, administrative filings and all mechanical, magnetic, photographic and electronic records or recordings of any kind, including any storage media associated with computers, including, but not limited to, information on hard drives, floppy disks, backup tapes, and zip drives, electronic communications, including but not limited to, the Internet and shall

include any drafts or revisions pertaining to any of the foregoing, all other things similar to any of the foregoing, however denominated by Tesla, any other data compilations from which information can be obtained, translated if necessary, into a usable form and any other documents. For purposes of this request, any document which contains any note, comment, addition, deletion, insertion, annotation, or otherwise comprises a non-identical copy of another document shall be treated as a separate document subject to production. In all cases where original and any non-identical copies are not available, "document(s)" also means any identical copies of the original and all non-identical copies thereof. Any document, record, graph, chart, film or photograph originally produced in color must be provided in color. Furnish all documents whether verified by Tesla or not. If a document is not in the English language, provide both the original document and an English translation of the document.

- **Other Terms:** To the extent that they are used in these information requests, the terms "claim," "consumer complaint," "dealer field report," "field report," "fire," "fleet," "good will," "make," "model," "model year," "notice," "property damage," "property damage claim," "rollover," "type," "warranty," "warranty adjustment," and "warranty claim," whether used in singular or in plural form, have the same meaning as found in 49 CFR 579.4.

In order for my staff to evaluate the alleged defect, certain information is required. Pursuant to 49 U.S.C. § 30166, please provide numbered responses to the following information requests. Insofar as Tesla has previously provided a document to ODI, Tesla may produce it again or identify the document, the document submission to ODI in which it was included and the precise location in that submission where the document is located. When documents are produced, the documents shall be produced in an identified, organized manner that corresponds with the organization of this information request letter (including all individual requests and subparts). When documents are produced and the documents would not, standing alone, be self-explanatory, the production of documents shall be supplemented and accompanied by explanation.

Please repeat the applicable request verbatim above each response. After Tesla's response to each request, identify the source of the information and indicate the last date the information was gathered.

1. State, by model and model year, the number of subject and peer vehicles Tesla has manufactured for sale or lease in the United States. Separately, for each subject and vehicle manufactured to date by Tesla, state the following:
  - a. Vehicle identification number (VIN);
  - b. Model;
  - c. Model Year;
  - d. Date of manufacture;
  - e. Date warranty coverage commenced;
  - f. The current number of eMMC program/erase (P/E) cycles (if the vehicle is currently equipped with an aftermarket eMMC that was not supplied by Tesla, so state and provide the last recorded P/E cycle count);

- g. The date the eMMC P/E cycles was recorded; and
- h. The State in the United States where the vehicle was originally sold or leased (or delivered for sale or lease).

Provide the table in Microsoft Access 2010, or a compatible format, entitled "PRODUCTION DATA." See Enclosure 1, Data Collection Disc, for a pre-formatted table that provides further details regarding this submission.

2. State the number of each of the following, received by Tesla, or of which Tesla is otherwise aware, which relate to, or may relate to, the alleged defect in the subject and peer vehicles:
  - a. Consumer complaints, including those from fleet operators;
  - b. Field reports, including dealer field reports;
  - c. Reports involving a crash, injury or fatality;
  - d. Property damage claims; and
  - e. Third-party arbitration proceedings where Tesla is or was a party to the arbitration; and
  - f. Lawsuits, both pending and closed, in which Tesla is or was a defendant or codefendant.

For subparts "a" through "f," state the total number of each item (e.g., consumer complaints, field reports, etc.) separately. Multiple incidents involving the same vehicle are to be counted separately. Multiple reports of the same incident are also to be counted separately (i.e., a consumer complaint and a field report involving the same incident in which a crash occurred are to be counted as a crash report, a field report and a consumer complaint).

In addition, for items "c" through "f" provide a summary description of the alleged problem and causal and contributing factors and Tesla's assessment of the problem, with a summary of the significant underlying facts and evidence. For items "e" and "f" identify the parties to the action, as well as the caption, court, docket number, and date on which the complaint or other document initiating the action was filed.

3. Separately, for each item (complaint, report, claim, notice, or matter) within the scope of your response to Request No. 2, state the following information:
  - a. Tesla's file number or other identifier used;
  - b. The category of the item, as identified in Request No. 2 (i.e., consumer complaint, field report, etc.);
  - c. Vehicle owner or fleet name (and fleet contact person), street address, email address and telephone number;
  - d. Vehicle's VIN;
  - e. Vehicle's make, model and model year;
  - f. Vehicle's mileage at time of incident;
  - g. Incident date;
  - h. Report or claim date;
  - i. Whether a crash is alleged;
  - j. Whether property damage is alleged;
  - k. Number of alleged injuries, if any;
  - l. Number of alleged fatalities, if any;
  - m. Whether the MCU was replaced by Tesla;

- n. The number of eMMC P/E cycles at the report or claim date;
- o. Tesla's assessment of the applicable subcategory of the alleged defect; and
- p. A short summary of the symptoms alleged.

Provide this information in Microsoft Access 2010, or a compatible format, entitled "REQUEST NUMBER TWO DATA." See Enclosure 1, Data Collection Disc, for a pre-formatted table that provides further details regarding this submission.

4. Produce copies of all documents related to each item within the scope of Request No. 2. Organize the documents separately by category (i.e., consumer complaints, field reports, etc.) and describe the method Tesla used for organizing the documents. Describe in detail the search methods and search criteria used by Tesla to identify the items in response to Request No. 2.
5. State, by model and model year, a total count for all of the following categories of claims, collectively, that have been paid by Tesla to date that relate to, or may relate to, the alleged defect in the subject and peer vehicles: warranty claims; extended warranty claims; claims for good will services that were provided; and field, zone, or similar adjustments and reimbursements.

Separately, for each such claim, state the following information:

- a. Tesla's claim number;
- b. Vehicle owner or fleet name (and fleet contact person), street address, email address and telephone number;
- c. VIN;
- d. Repair date;
- e. Vehicle mileage at time of repair;
- f. Repairing dealer's or facility's name, telephone number, city and state or ZIP code;
- g. Labor operation number(s);
- h. Problem code(s);
- i. Diagnostic trouble code(s);
- j. Replacement part number(s) and description(s);
- k. The number of eMMC P/E cycles when repaired;
- l. Concern stated by customer;
- m. Cause as stated on the repair order;
- n. Correction as stated on the repair order; and
- o. Additional comments, if any, by dealer/technician relating to claim and/or repair.

Provide this information in Microsoft Access 2010, or a compatible format, entitled "WARRANTY DATA." See Enclosure 1, Data Collection Disc, for a pre-formatted table that provides further details regarding this submission.

6. Describe in detail the search methods and search criteria used by Tesla to identify the claims in response to Request No. 5, including the labor operations, problem codes, diagnostic trouble codes, part numbers and any other pertinent parameters used.

Provide a list of all labor operations, labor operation descriptions, problem codes, and problem code descriptions, diagnostic trouble codes and diagnostic trouble code descriptions applicable to the alleged defect in the subject vehicles. State whether the diagnostic trouble codes are automatically reported to the warranty database electronically or manually entered into the warranty database by a claims administrator.

State, by make and model year, the terms of the new vehicle warranty coverage offered by Tesla on the subject vehicles (i.e., the number of months and mileage for which coverage is provided and the vehicle systems that are covered). Describe any extended warranty coverage option(s) that Tesla offered for the subject vehicles and state by option, model, and model year, the number of vehicles that are covered under each such extended warranty.

7. State, by model and model year, a total count for all customer pay repairs that relate to, or may relate to, the alleged defect in the subject and peer vehicles (to the extent the requested data is available).

Separately, for each such claim, state the following information:

- a. Tesla's repair reference number;
- b. Vehicle owner or fleet name (and fleet contact person), street address, email address and telephone number;
- c. VIN;
- d. Repair date;
- e. Vehicle mileage at time of repair;
- f. Repairing dealer's or facility's name, telephone number, city and state or ZIP code;
- g. Labor operation number(s);
- h. Problem code(s);
- i. Diagnostic trouble code(s);
- j. Replacement part number(s) and description(s);
- k. The number of eMMC P/E cycles when repaired;
- l. Concern stated by customer;
- m. Cause as stated on the repair order;
- n. Correction as stated on the repair order; and
- o. Additional comments, if any, by dealer/technician relating to claim and/or repair.

Provide this information in Microsoft Access 2010, or a compatible format, entitled "NON-WARRANTY REPAIR DATA." See Enclosure 1, Data Collection Disc, for a pre-formatted table that provides further details regarding this submission.

8. Produce copies of all service, warranty, and other documents that relate to, or may relate to, the alleged defect in the subject and peer vehicles, that Tesla has issued to any dealers, regional or zone offices, field offices, fleet purchasers, or other entities. This includes, but is not limited to, bulletins, advisories, informational documents, training documents, or other documents or communications, with the exception of standard shop manuals. Also include the latest draft copy of any communication that Tesla is planning to issue within the next 120 days.

9. Describe all assessments, analyses, tests, test results, studies, surveys, simulations, investigations, inquiries and/or evaluations (collectively, “actions”) that relate to, or may relate to, the alleged defect in the subject and peer vehicles that have been conducted, are being conducted, are planned, or are being planned by, or for, Tesla. For each such action, provide the following information:
  - a. Action title or identifier;
  - b. The actual or planned start date;
  - c. The actual or expected end date;
  - d. Brief summary of the subject and objective of the action;
  - e. Engineering group(s)/supplier(s) responsible for designing and for conducting the action; and
  - f. A brief summary of the findings and/or conclusions resulting from the action.

For each action identified, provide copies of all documents related to the action, regardless of whether the documents are in interim, draft, or final form. Organize the documents chronologically by action.

10. Describe all modifications or changes made by, or on behalf of, Tesla in the design or programming of the subject component, from the start of production to date, which relate to, or may relate to, the alleged defect in the subject and peer vehicles. Include all over-the-air updates to vehicle software/firmware related to the alleged defect, include changes in default operating modes and changes in memory use by the subject eMMC. For each such modification or change, provide the following information:
  - a. The date or approximate date on which the modification or change was incorporated into vehicle production;
  - b. A detailed description of the modification or change;
  - c. The reason(s) for the modification or change;
  - d. The part number(s) (service and engineering) of the original component;
  - e. The part number(s) (service and engineering) of the modified component;
  - f. Whether the original unmodified component was withdrawn from production and/or sale, and if so, when;
  - g. When the modified component was made available as a service component; and
  - h. Whether the modified component can be interchanged with earlier production components.

Also, provide the above information for any modification or change that Tesla is aware of which may be incorporated into vehicle production within the next 120 days.

11. State the number of subject components that Tesla has sold that may be used in the subject and peer vehicles by component name, part number (both service and engineering/production), eMMC storage capacity, model and model year of the vehicle in which it is used and month/year of sale (*including the cut-off date for sales, if applicable*).

For each component part number, provide the supplier’s name, address, and appropriate point of contact (name, title, and telephone number). Also identify by make, model and model year, any other vehicles of which Tesla is aware that contain the identical component,

whether installed in production or in service, and state the applicable dates of production or service usage.

In addition, state whether Tesla is able to identify subject vehicles equipped with eMMC storage devices installed by third-party repair facilities. If so, provide a description of how the vehicles are identified and provide an Excel file listing all such vehicles by VIN, date and mileage the eMMC appears to have been replaced.

12. Provide a diagram of the architecture of in-vehicle electronics, including the subject component, other electronic control units, communication networks, and external connectivity ports (cellular, wi-fi, Bluetooth).
13. Provide the following information regarding subject eMMC memory devices:
  - a. Supplier;
  - b. Data sheets;
  - c. Storage capacity;
  - d. Describe the layout/configuration of the eMMC flash memory;
  - e. Describe error correction and wear leveling strategies that may affect device durability;
  - f. Rated number of P/E cycles;
  - g. Nominal daily P/E cycles;
  - h. Describe all OTA updates affecting P/E cycle use rate that have been released by Tesla;
  - i. Factors that influence daily storage use (with estimated upper bound); and
  - j. Expected service life in years at: 1) nominal daily P/E cycle use; and 2) 95<sup>th</sup> percentile daily P/E cycle use.
14. Provide the following information about eMMC memory wear-out in the subject components:
  - a. Describe operations that use flash memory (include description of the original design and all changes implemented to date);
  - b. Tesla's assessment of the root cause of MCU failures in the subject vehicles;
  - c. Symptoms of an eMMC card that is nearing end-of-life memory wear;
  - d. Vehicle control functions, audible alerts, and safety telltale displays that are lost when MCU fails (black screen);
  - e. Driver options for performing control functions by alternate means (e.g., steering wheel controls), if applicable;
  - f. Driver options for displaying system status and/or telltale symbols on alternate screens (e.g., dashboard user interface);
  - g. Audible warning chimes;
  - h. Safety restraint telltales;
  - i. Effects on exterior lighting control; and
  - j. Description of climate control function after MCU failure to provide defogging/defrosting functions required for visibility.
15. Furnish Tesla's assessment of the alleged defect in the subject vehicle, including:
  - a. The causal or contributory factor(s);



- b. The failure mechanism(s);
- c. The failure mode(s);
- d. The risk to motor vehicle safety that it poses; and
- e. What warnings, if any, the operator and the other persons both inside and outside the vehicle would have that the alleged defect was occurring or subject component was malfunctioning; and
- f. The NHTSA complaints sent to Tesla for review.

### **Legal Authority for This Request**

This letter is being sent to Tesla pursuant to 49 U.S.C. § 30166, which authorizes NHTSA to conduct any investigation that may be necessary to enforce Chapter 301 of Title 49 and to request reports and the production of things. It constitutes a new request for information.

### **Civil Penalties**

Tesla's failure to respond promptly and fully to this letter could subject Tesla to civil penalties pursuant to 49 U.S.C. § 30165 or lead to an action for injunctive relief pursuant to 49 U.S.C. § 30163. (Other remedies and sanctions are available as well.) The Vehicle Safety Act, as amended, 49 U.S.C. § 30165(a)(3), provides for civil penalties of up to \$22,329 per violation per day, with a maximum of \$111,642, 265 for a related series of daily violations, for failing or refusing to perform an act required under 49 U.S.C. § 30166. *See* 49 CFR 578.6 (as amended by Fixing America's Surface Transportation Act (the "FAST Act"), Pub. L. 114-94, § 24110(a)(2), 129 Stat. 1312 (Dec. 4, 2015)). This includes failing to respond completely, accurately, and in a timely manner to ODI information requests.

If Tesla cannot respond to any specific request or subpart(s) thereof, please state the reason why it is unable to do so. If on the basis of attorney-client, attorney work product, or other privilege, Tesla does not submit one or more requested documents or items of information in response to this information request, Tesla must provide a privilege log identifying each document or item withheld, and stating the date, subject or title, the name and position of the person(s) from, and the person(s) to whom it was sent, and the name and position of any other recipient (to include all carbon copies or blind carbon copies), the nature of that information or material, and the basis for the claim of privilege and why that privilege applies.

### **Confidential Business Information**

**All business confidential information must be submitted directly to the Office of Chief Counsel as described in the following paragraph and should not be sent to this office.** In addition, do not submit any business confidential information in the body of the letter submitted to this office. Please refer to PE20-010 in Tesla's response to this letter and in any confidentiality request submitted to the Office of Chief Counsel.

If Tesla claims that any of the information or documents provided in response to this information request constitute confidential commercial material within the meaning of 5 U.S.C. § 552(b)(4), or are protected from disclosure pursuant to 18 U.S.C. § 1905, Tesla must submit supporting

information together with the materials that are the subject of the confidentiality request, in accordance with 49 CFR Part 512. Additional information can be found here: <https://www.nhtsa.gov/coronavirus/submission-confidential-business-information>.

If you have any questions regarding submission of a request for confidential treatment, contact Daniel Rabinovitz, Trial Attorney, Office of Chief Counsel at [daniel.rabinovitz@dot.gov](mailto:daniel.rabinovitz@dot.gov) or (202) 366-8534.

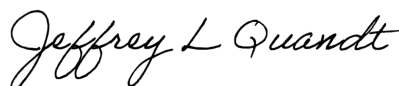
### **Due Date**

Tesla's response to this letter, in duplicate, together with a copy of any confidentiality request, must be submitted to this office by **August 7, 2020**. Tesla's response must include all non-confidential attachments and a redacted version of all documents that contain confidential information. If Tesla finds that it is unable to provide all of the information requested within the time allotted, Tesla must request an extension from me at (202) 366-5207 no later than five business days before the response due date. If Tesla is unable to provide all of the information requested by the original deadline, it must submit a partial response by the original deadline with whatever information Tesla then has available, even if an extension has been granted.

Please send email notification to Ajit Alkondon at [ajit.alkondon@dot.gov](mailto:ajit.alkondon@dot.gov) and to [ODI\\_IRresponse@dot.gov](mailto:ODI_IRresponse@dot.gov) when Tesla sends its response to this office and indicate whether there is confidential information as part of Tesla's response.

If you have any technical questions concerning this matter, please call Ajit Alkondon of my staff at (202) 366-3565.

Sincerely,



Jeffrey L. Quandt, Chief  
VDD-D Division  
Office of Defects Investigation