U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**

1200 New Jersey Avenue SE.
Washington, DC 20590

April 19, 2020

SENT VIA EMAIL

Mr. Eric Williams
Associate General Counsel, Regulatory
Tesla, Inc.
1333 H Street, NW, Suite 11W
Washington, DC, 20005

Dear Mr. Williams:

On behalf of the National Highway Traffic Safety Administration ("NHTSA" or the "Agency"), an operating administration within the U.S. Department of Transportation, I am writing to request further information about the performance of Autopilot features installed on certain Tesla model vehicles. As you know, since the conclusion of NHTSA's Preliminary Evaluation PE16-007 in 2017, the Agency has continued to monitor the advanced driver assistance systems equipped in Tesla vehicles, particularly those vehicles equipped with purported "Autopilot" or "Full Self-Driving Capability."[1]

We are seeking both general information about the performance of Tesla's Autopilot features and specific information regarding recent crashes involving emergency services vehicles and incidents involving inattentive drivers. In recent discussions with NHTSA, Tesla has indicated that Tesla is working on updates to Autopilot features to allow Autopilot to better detect and avoid stationary emergency services vehicles. Tesla has also discussed potential updates to improve driver monitoring. In order to properly assess these recent incidents and to better understand how Tesla's planned updates would increase driver attentiveness and reduce the risk of collisions with stationary emergency vehicles, we are seeking additional information from Tesla. In addition to written responses, we are requesting a meeting to review Tesla's responses with NHTSA's team of technical experts.

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. While the agency is not opening a formal investigation at this time, this letter constitutes a new request for information. Please follow the instructions below when providing responses to the numbered information requests.

---

[1] *See* NHTSA Office of Defect Investigation, *Preliminary Evaluation PE16-007 Closing Resume: Automatic vehicle control systems* (Jan. 19, 2017), available online at https://static.nhtsa.gov/odi/inv/2016/INCLA-PE16007-7876.PDF.

Instructions:

- Before each response, please write out the information request exactly as it appears. Be sure to answer each sub-item separately, where applicable.
- After your response to each request, identify the source of the information.
- If you use documents in your responses, please refer to them and present them in an organized manner. Be sure to explain how the attached documents apply to the specific information request.
- If a document is not in English, please provide both the original document and an English translation of the document.
- If you cannot respond to any item, please state the reason why you are unable to do so.

Unless otherwise stated in the text, the following definitions apply to the information request set forth below:

- **Tesla**: "Tesla" means Tesla, Inc., 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, parent corporations at any tier, subsidiaries (whether or not incorporated) at any tier, and affiliated enterprises and all of their headquarters, regional, zone and other offices, and all agents, contractors (e.g., test facilities that conduct compliance tests), consultants, and other persons engaged by or under the control of them who are now or were involved with any of the following:

  (a) design, analysis, modification or production of traffic aware cruise control ("TACC") and automatic emergency breaking ("AEB"), and SAE Level 2 and above advanced driver assistance systems ("Autopilot or associated names and nomenclatures");
  (b) testing, assessment, or evaluation of Autopilot;
  (c) regulatory certification and/or compliance determination with Autopilot;

- **You** or **Your:** means Tesla or Tesla's.

- **Document(s):** "Document(s)" is used in the broadest sense of the word under Rule 34 of the Federal Rules of Civil Procedure, and includes 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, electronic communications (existing in hard copy and/or in electronic storage), invoices, contracts, agreements, manuals, publications, photographs of all types, and all mechanical, magnetic, and electronic records or recordings of any kind. Any document, record, graph, chart, film or photograph originally produced in color must be provided in color. Furnish all documents whether verified by the manufacturer or

not. IF A DOCUMENT IS NOT IN THE ENGLISH LANGUAGE, PROVIDE BOTH THE ORIGINAL DOCUMENT AND AN ENGLISH TRANSLATION OF THE DOCUMENT.

Please provide the following:

1. Updated fleet Autopilot sales, usage, and crash statistics (with Autopilot active vs inactive), by model, model year, Autopilot hardware type, software version, road class, and crash type;

2. Autosteer on City Streets Update:
    a. A listing of VIN's equipped with Autosteer on City Streets

    b. Chronological listing of Autosteer on City Streets Firmware improvements with scope and purpose of each;

    c. Statistics to date by Road Class and Firmware Number, total Autosteer on City Streets miles covered, total Autosteer on City Streets Brake Interventions, total Autosteer on City Streets Steer Interventions, and collisions (with Autosteer on City Streets engaged); and

    d. For any reported collisions, furnish the information requested in Question 8 below.

3. Summon (or related technologies) Update:
    a. Chronological listing of Summon Firmware improvements with scope and purpose of each;

    b. Statistics to date by Firmware Number, total usages, total Summon Brake Interventions, and Summon collisions alleged; and

    c. For any reported Summon collisions please provide the location of the collision (GPS Coordinates) and furnish the information requested in Question 8 below.

4. A chronological overview of versions of automated braking algorithms for TACC and AEB introduced (including how updates may have been performed on vehicles sold to consumers) since the introduction of the Autopilot feature. For each new software algorithm version, state its designation or identifier, show how it applies in each version of Autopilot hardware, which sensors are used by TACC & AEB, the maximum braking authority, intended targets, and a brief description of the signals/factors/latency in triggering warnings and automated braking.

5. A comparison of system performance in ideal/daylight conditions and in low light/nighttime conditions. Include a summary of environmental conditions that may limit system performance (e.g., flashing lights on police, fire, and rescue emergency vehicles).

6. A detailed chronology of changes made to driver state monitoring (including, but not limited to, monitoring technology itself, strategies to maintain driver engagement, available fallback minimum risk condition mechanisms, alert timing, alert modality, etc.), across software and hardware versions since the introduction of Autopilot and the rationale for each update;
    a. An overview of the major changes delineated on the chronology along with their intended safety benefits; and
    b. Expected improvements to driver state monitoring in new production and their applicability for retrofit to existing vehicles in-field.

7. For each incident on the **Incident List**, please provide a detailed reconstruction including visual depictions where appropriate. The reconstruction should include a collision scene diagram and a road map illustrating the path traveled by the involved Tesla vehicle ("subject vehicle") with callouts to indicate relevant alert/warning presentation timing and speeds leading up to the time of the collision. Use video files to illustrate the subject vehicle's detection of surrounding vehicles and objects where appropriate.

8. For each incident on the **Incident List**, please also provide:
    a. The incident scene;
        i. The configuration and model(s) of any struck vehicle(s) or object(s) prior to the crash[2];
            A. Including the extent to which the struck vehicle(s) intruded into the lane(s) of travel, if at all; and
            B. The orientation of the struck vehicle(s) with respect to the subject vehicle.
        ii. Any type of scene control that may have been present prior to the crash (e.g. (color / style of emergency lights, cones, or flares); and
        iii. Weather / visibility (including lighting) conditions.

    b. Subject vehicle (please include video or photos from the subject vehicle systems to represent system behavior and identification):

[2] "Crash" refers to the incident involving the Tesla vehicle in question, not any preceding crash or vehicle incident that may have resulted in the presence of emergency vehicles at the scene prior to the Tesla vehicle's arrival.

i. Type of advanced driver assistance system ("ADAS") in operation at the time of the crash, including user selectable sensitivity settings, if available;
ii. Any warnings or alerts displayed or otherwise provided to the driver leading up to the collision (Tesla's response should indicate whether a driver whose hands are detected on the steering wheel receives the same warning as a driver whose hands are not detected immediately prior to the collision);
iii. Interventions (if any) by ADAS systems immediately prior to impact;
iv. Hardware and firmware versions at the time of the crash;
v. All sensors and algorithms active at the time of the crash, which were capable of commanding braking (in tabular form by algorithm name); and
vi. If possible (e.g., if video is available), provide a review of when the system would be expected to detect and classify the target object (this includes sensing the target and recognizing it as a target/obstacle) and when warnings and automated braking would be expected (include a discussion of whether any current or planned changes by hardware version (e.g. HW1.0) may have affected the performance).

c. Subject vehicle driver:
   i. Driver actions leading up to the incident and immediately prior to impact;
   ii. Trip duration (miles / time) up to incident;
   iii. Time with the following systems in operation up to incident;
      A. Autosteer; and
      B. TACC;
   iv. Tesla's assessment of driver engagement in the Autopilot use cycle leading up to the incident including:
      A. Time elapsed between initial impact and the most recent time hands were detected on the steering wheel;
      B. Number, type, and timing of driver engagement warning(s), if any prior to the incident. Include relevant warning descriptions / images; and
      C. Any additional facts Tesla deems appropriate; and
   v. Miles and days of ownership.

d. Potential countermeasures:
   i. Evaluate the effect, if any, that Tesla's recently proposed countermeasures would have had on the outcome of the incident.

e. Any expert report that has been produced by Tesla or received from another party in a lawsuit or a pre-suit claim regarding the incidents below. This includes any reports produced or exchanged for experts designated by any party in such litigation, including Tesla, plaintiff(s)/claimants, or co-defendants.

9. Provide a list of all over-the-air updates issued in the last six months and any planned future updates intended to improve driver engagement while Autopilot is active. Please also list any planned updates to improve TACC or AEB on Tesla vehicles. Your response should include a response for the reason for the update or improvement made by the update.

10. Please also provide any studies or assessments regarding driver engagement during use of Autopilot in Tesla vehicles or the performance of TACC or AEB systems in Tesla vehicles in detecting and responding to stationary objects or flashing lights.

Incident List

a. First Responder Move-Over Incidents (Incident Date and location)
   i. 2021-03-17 Lansing, MI
   ii. 2021-02-27 Montgomery, TX
   iii. 2020-08-26 Charlotte, NC
   iv. 2020-07-14 Tucson, AZ
   v. 2019-12-30 West Bridgewater, MA
   vi. 2019-12-29 Cloverdale, IN
   vii. 2019-12-07 Norwalk, CT
   viii. 2018-05-11 South Jordan, UT
   ix. 2018-05-29 Laguna Beach, CA

b. Additional Inattentive Driver Incidents (Incident Date and location)
   i. 2020-08-12 Saratoga, CA
   ii. 2019-12-29 Los Angeles, CA (Harbor Gateway)
   iii. 2019-09-15 Hamilton Twp, NJ
   iv. 2021-03-16 Sanford, NC; and
   v. 2019-04-25 Key Largo, FL

c. Any other incident since 2018 of which Tesla is aware in which a subject vehicle struck a crossing path vehicle, or stationary police, fire, or other emergency services vehicle, or fixed roadside object for which autopilot was engaged at the time of the incident or

in the five seconds prior to the incident and the subject vehicle's speed of travel was 45 miles-per-hour prior to the collision or activation of AEB.

.

Civil Penalties

Tesla's failure to respond promptly and fully to this letter could subject it 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 $22,723 per violation per day, with a maximum of $113,611,635 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)) and 83 Fed. Reg. 60733, 60735 (Nov. 27, 2018). This includes failing to respond completely, accurately, and in a timely manner to NHTSA 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; 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.

If your response contains any material that you claim is confidential business information, it is essential that you follow the instructions in the enclosure, "Information for Requests for Confidentiality." You can also refer to our confidential business information regulations located at 49 C.F.R. Part 512.

To facilitate social distancing due to COVID-19, NHTSA is treating electronic submission as an acceptable method for submitting confidential business information (CBI) to the agency under 49 C.F.R. Part 512. Since Part 512 submissions are handled by NHTSA's Office of Chief Counsel, any Part 512 submission should be sent to Mr. Thomas Healy in the Office of Chief Counsel. Specifically, any CBI submissions sent via email should be sent to Mr. Healy at Thomas.Healy@dot.gov. Likewise, for CBI submissions via a secure file transfer application, Mr. Healy must be set to receive a notification when files are submitted and have access to retrieve the submitted files. At this time, regulated entities should not send a duplicate hardcopy of their electronic CBI submissions to DOT headquarters.

Please note that these modified submission procedures are only to facilitate continued operations while maintaining appropriate social distancing due to COVID-19. Regular procedures for Part

512 submissions will resume upon further notice, when NHTSA and regulated entities discontinue operating primarily in telework status.

For questions about CBI issues, including these modified submission procedures, please contact Dan Rabinovitz in the Office of Chief Counsel at Daniel.Rabinovitz@dot.gov or 202-366-8534.

Due Date

Your company's complete response to this request must be received in our office on or before the close of business by the following date:

May 19, 2021

Please email your response to Greg Magno of my staff at Gregory.Magno@dot.gov. You may also contact Greg Magno with any questions concerning these requests and to arrange for a meeting or if you have any questions about this letter.

Sincerely,

STEPHEN ANTHONY RIDELLA

Digitally signed by STEPHEN ANTHONY RIDELLA
Date: 2021.04.19 13:02:20 -04'00'

Stephen A. Ridella, Ph.D.
Director, Office of Detects Investigation