GS-067-24

Oakland Area

MAIT SUPPLEMENTAL

This investigation was conducted by the California Highway Patrol (CHP) Golden Gate Division Multidisciplinary Accident Investigation Team (MAIT).

MAIT PERSONNEL

Sergeant K. Rose, ID 19494, Golden Gate Division MAIT Team Leader
Officer V. Ruiz, ID 19129, Golden Gate Division MAIT Investigator
Officer M. Martineau, ID 21005, Golden Gate Division MAIT Investigator
Motor Carrier Specialist I R. Ramirez, ID A10485, Golden Gate Division MAIT Investigator
Retired Annuitant J. Blencowe, ID A20200, Golden Gate Division MAIT Assistant

SUBPOENAS FOR PERSONNEL SHOULD BE DIRECTED TO:

California Highway Patrol
Golden Gate Division
1551 Benicia Road
Vallejo, California 94591-7568
Attention: Sergeant K. Rose

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INTRODUCTION

Notification

On Wednesday, November 27, 2024, Golden Gate Division Assistant Chief B. Moser, ID 15852, received a request from Oakland Area Lieutenant J. Smith, ID 18693, for assistance with a fatal traffic crash investigation. That request was approved and forwarded to Sergeant Rose to facilitate the use of Golden Gate Division MAIT resources.

The traffic crash occurred on Wednesday, November 27, 2024, at 0307 hours, on Hampton Road east of King Avenue, within the city limits of Piedmont, in Alameda County. The traffic crash involved a 2024 Tesla Cybertruck driven by Soren Mangseth Dixon (Driver Dixon) and occupied by Jordan Garvey Miller (Passenger Miller), Jack Robert Nelson (Passenger Nelson), and Krysta Michelle Tsukahara (Passenger Tsukahara). The Tesla Cybertruck struck a tree and Driver Dixon and Passenger Tsukahara sustained fatal injuries.

Issues

The purpose of MAIT involvement was to assist Oakland Area personnel with the following components of the traffic crash investigation:

- Obtain data from the Airbag Control Module of the Tesla Cybertruck to determine speed and driver inputs prior to or during the traffic crash
- Determine if the Tesla Cybertruck was being driven in autonomous mode prior to or during the traffic crash

VEHICLE IDENTIFICATION

2024 Tesla Cybertruck

Inspection Date(s):	Monday, December 9, 2024
Location of Inspection:	Oliver's Tow 2800 Radiant Avenue, Suite A Richmond, California 94801-1103
Year / Make / Model:	2024 / Tesla / Cybertruck
Exterior Paint Color:	Silver
Date of Manufacture:	Unknown
License Number / State:	[redacted] / California
Vehicle Identification Number (VIN):	[redacted]
Registered Owner:	[redacted]
Legal Owner:	Same as Registered Owner
Recommended Tire Size: Equipped Tire Size:	LT285/65R20[1] LT285/65R20
Supplemental Restraint System Deployment:	Yes
Unrepaired Recalls:[2]	Two

The Tesla Cybertruck was impounded as evidence per California Vehicle Code § 22655.5, towed from the traffic crash scene by Oliver's Tow, and placed in their impound facility.

The Tesla Cybertruck had two unrepaired recalls. The first recall (NHTSA #24V718) was issued on Monday, September 30, 2024, and related to specific Cybertruck vehicles that are or were operating with a specific software logic for low voltage hardware, to correct a condition that may prevent the rearview camera image from displaying within two seconds upon shifting into reverse as required by FMVSS 111, S6.2.3. The second recall (NHTSA #24V832) was issued on Tuesday, November 5, 2024, and related to specific Cybertruck vehicles that are or were equipped with metal-oxide-semiconductor field-effect transistors (MOSFET) in the drive inverter, that on affected vehicles a fault in the drive inverter may cause it to stop producing torque.

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[1] Tesla, Cybertruck Owner's Manual, https://www.tesla.com/ownersmanual/cybertruck/en_us/GUID-9284C9F2-A2F2-4604-83BF-6599F47766B7.html

[2] Check for Recalls: Vehicle, Car Seat, Tire, Equipment | NHTSA, https://www.nhtsa.gov/recalls (March 4, 2025)

EVENT DATA RECORDER

Introduction

Modern vehicles generally include an Airbag Control Module (ACM) that controls the function and deployment of the Supplemental Restraint System (SRS). The SRS consists primarily of airbags and seatbelt pretensioners and may include other restraint features depending on the vehicle manufacturer and model. Each individual vehicle manufacturer identifies their ACM with a manufacturer specific name; however, the terms are synonymous and interchangeable.

An ACM may be equipped with an Event Data Recorder (EDR) that contains an Electronically Erasable Programmable Read Only Memory (EEPROM) which is used to preserve crash event data. Loss of power to the ACM (e.g., cut wires, damage to the battery, damage to the distribution panel) during or immediately following the crash, may prevent the data from being recorded to the EEPROM. A backup power supply maybe incorporated within the ACM to continue to analyze the acceleration data and deploy the SRS if needed. However, the backup power supply is limited and is sometimes not sufficient to record data or provide power to the ACM during subsequent crash events.

The ACM also performs diagnostic monitoring of the electrical components and circuitry of the SRS whenever the ignition is turned on. If the ACM detects a malfunction in the system, the ACM will command the airbag warning lamp to illuminate within the instrument cluster, notifying the driver a malfunction exists in the SRS. Depending on the manufacturers' programming, a Diagnostic Trouble Code (DTC) may be recorded.

Pursuant to 49 Code of Federal Regulations § 563.12, if a vehicle was manufactured on, or after, September 1, 2012, and it was equipped with an ACM with an EDR designed to record and store crash related data, the manufacturer of the vehicle is required to ensure that a tool is commercially available which can access and retrieve the crash related data stored in the ACM. Prior to September 1, 2012, some vehicle manufacturers installed an EDR, however the recorded data was not regulated.

EVENT DATA RECORDER

Introduction

The Tesla EDR tool images the data directly from the ACM, then the data must be sent to the Tesla EDR webpage for translation. When translation is complete, a report is generated and downloaded. The generated report must be analyzed to determine if the data contained in the report was associated with the crash under investigation. To determine if the data from each event recorded in the ACM was related to the crash under investigation, an analysis must be performed which includes, at a minimum, the following:

- Did the internal check performed by the ACM show the event was completely recorded and locked?
- Were the ignition cycles (if available) at the time of recording and data imaging concurrent?
- Was the recorded magnitude and direction of the change in velocity (Delta-V) by the ACM consistent with damage sustained to the vehicle?
- Was the recorded pre-crash data (if available) by the ACM consistent with the crash scenario as described in the Area's/Agency's Traffic Crash Report?

A deployment event is created when a restraint (defined by the manufacturer) was commanded to deploy. A deployment event is a locked event within the memory of the ACM. The deployment event cannot be overwritten by newer events and cannot be removed from the ACM. A non-deployment event is created when the ACM senses an event that meets the manufacturer defined threshold but did not command any restraint to be deployed. A non-deployment event is not locked and may be overwritten by a deployment event or newer more severe non-deployment event. The total number of events able to be stored in the memory is manufacturer dependent. Once the ACM has deployed an airbag, the ACM must be replaced.

The data recording and operation of the ACM of modern vehicles are based on a vehicle fixed axial system. A majority of the modern vehicles are in accordance with Society of Automotive Engineers (SAE) Standard J1733, the vehicle axes originate from the center of mass of the vehicle, with the longitudinal axis oriented from rear to front. The polarity (+ or -) of the longitudinal axis indicates direction (positive is to the front and negative is to the rear). The lateral axis is oriented from left to right (positive is to the right and negative is to the left). The roll axis is oriented longitudinally, with clockwise about the longitudinal axis being positive. The steering data conforms to SAE Standard J1733. A positive number indicates a steering wheel input to the right (clockwise).

The EDR report was identified by the VIN in the File Information section on page one. Information on page one was entered at the time of the data imaging and the EDR report was analyzed to detail specific portions of the report.

EVENT DATA RECORDER

2024 Tesla Cybertruck

Overview

On Wednesday, December 4, 2024, Oakland Area Officer J. Nedelcu, ID 22124, obtained a search warrant signed by the Honorable J. Chin, a Judge of the Superior Court of California, Alameda County, which commanded the ACM data from the Tesla Cybertruck to be imaged.

On Monday, December 9, 2024, Sergeant Rose and Investigators Ruiz, Martineau, and Ramirez responded to Oliver's Tow located in Richmond, California, to photograph, inspect, and image data from the ACM equipped in the Tesla Cybertruck. Also present were representatives from Telsa Incorporated to assist in safely accessing the vehicle. The Tesla Cybertruck sustained crash damage to the front, with a Principal Direction of Force (PDOF) primarily from front to rear.

The Tesla Cybertruck sustained extensive thermal damage which incinerated the non-metallic supplemental restraint system components. However, the deployed state of the supplemental restraint system was confirmed by witness statements documented in Oakland Area traffic crash report 9370-2024-03814, which indicated the passenger airbags in the Tesla Cybertruck were deployed during this traffic crash.

The extensive thermal damage compromised the electrical system, so no attempt was made to restore electrical power to the Tesla Cybertruck. The best way to image the data from the ACM was determined to be direct to module. Sergeant Rose located the ACM securely mounted with three stud bolts to the floorboard between the front seats with its wiring harness still securely attached. A visual inspection of the module revealed that the outer case was intact, but black soot residue was observed on the exterior of the ACM. Sergeant Rose removed the ACM and cleaned the exterior of the case, revealing the following information:

- Brand: Bosch
- Restraint Control Module: AB 12.1
- Part Number: 1872985-00-A
- Serial Number: [redacted]

Investigator Ruiz secured the ACM to a tabletop and imaged the ACM utilizing the Tesla EDR retrieval program.[3] The image file was uploaded to the Tesla EDR Report Service,[4] which was able to translate the raw data and produce a report. The report file was saved and is included in the Annex.

Pursuant to California Penal Code §1546.2(a), a notification letter was attached to a copy of the search warrant and addressed to the identified target of the search warrant, [redacted] who was the registered owner of the Tesla Cybertruck. The search warrant and notification letter were mailed by certified mail at the direction of Officer Nedelcu from the California Highway Patrol Oakland Area Office.

[3] Tesla EDR Retrieval Program [Software], version 24.19.0
[4] Tesla EDR Reporting Service, version 24.43.1, available at https://edr.tesla.com (December 9, 2024)

EVENT DATA RECORDER

2024 Tesla Cybertruck

Overview

There was one event listed in the EDR Report for the Tesla Cybertruck, which was identified as Event 1, and was a deployment event. The event listed contained pre-crash data. The EDR Report indicated the recording for the event was completed. A completed recording was an indication that the information stored in the ACM was a true and accurate recording of the data available to the ACM at the time of the recording and the internal check of the system did not find any errors.

The ignition cycle count at the time of the event was 776. The ignition cycle count commonly refers to the number of times the ignition switch was cycled from an “Off/Accessory” to “Run” position, in Tesla this relates to when the vehicle is placed into a run mode. The ignition cycle count was 777 when the data was imaged. It is common to add an ignition cycle at the time of the data imaging when 12-volt power is applied to the ACM. The ignition cycle count being sequential from event to data retrieval was an indication that the data recorded in the ACM and reported in the EDR Report was associated with the crash under investigation.

EVENT DATA RECORDER

2024 Tesla Cybertruck

Event 1

The EDR Report indicated a deployment command was given for the following supplemental restraint system components:

- Driver and Passenger Front Airbag Stage 1
- Driver and Passenger Front Airbag Stage 2
- Driver and Passenger Front Airbag Active Vent
- Passenger Side Airbag
- Driver and Passenger Curtain Airbag
- Driver and Passenger Pretensioner
- Driver and Passenger Outboard Lap Pretensioner
- Driver and Passenger Load Limiter
- Driver and Passenger Knee Airbag
- Driver Seat Inboard Airbag – Far Side

Due to the thermal damage sustained to the Tesla Cybertruck, the individual deployments of each supplemental restraint system component could not be confirmed.

EVENT DATA RECORDER

2024 Tesla Cybertruck

Pre-Crash Data

The event contained pre-crash data for approximately five seconds before "Time Zero" and was recorded in 0.5 second increments. The data was recorded asynchronously. The 0.0 second pre-crash data value was the last data point sampled at "Time Zero." As a result, the last data point may have been captured at any point less than 0.5 second before "Time Zero," but not more than 0.5 second before "Time Zero." All the subsequent data points are referenced from the 0.0 second mark. The Pre-Crash Data charts are shown below:

Time (sec)	Vehicle Speed (km/h)	Accelerator Pedal (%)	Motor Speed (rpm)
-5.0	130	79	11900
-4.5	131	0	12100
-4.0	131	0	11900
-3.5	128	61	11700
-3.0	127	0	11500
-2.5	123	0	11100
-2.0	119	0	10400
-1.5	114	0	10200
-1.0	109	0	9300
-0.5	101	0	8300
0.0	93	0	7600

EDR Report, Page 8, Event Data Chart

Time (sec)	Service Brake	Stability Control	ABS Activity
-5.0	Off	On, Inactive	Inactive
-4.5	Off	On, Inactive	Inactive
-4.0	Off	On, Inactive	Inactive
-3.5	Off	On, Inactive	Inactive
-3.0	On	On, Active	Inactive
-2.5	On	On, Active	Inactive
-2.0	On	On, Active	Inactive
-1.5	On	On, Active	Inactive
-1.0	On	On, Active	Inactive
-0.5	On	On, Active	Active
0.0	On	On, Active	Active

EDR Report, Page 8, Event Data Chart

EVENT DATA RECORDER

2024 Tesla Cybertruck

Pre-Crash Data

The recorded vehicle speed is reported in kilometers per hour (kph). To convert kph to miles per hour (mph) it is known that one kph is equal to 0.6214 mph. With this conversion factor the following chart was derived.

TIME	SPEED (KPH)	SPEED (MPH)
-5.0	130	80.8
-4.5	131	81.4
-4.0	131	81.4
-3.5	128	79.5
-3.0	127	78.9
-2.5	123	76.4
-2.0	119	73.9
-1.5	114	70.8
-1.0	109	67.7
-0.5	101	62.8
0.0	93	57.8

The pre-crash speeds in the ACM can be affected by various factors, including, but not limited to the following:

- Changes in the rolling radius of the tires
- Final drive axle ratio changes
- Wheel lock-up or wheel slip

The reported speed of a vehicle is dependent on the size of the equipped tires. The original equipped manufacturer (OEM) sized tires of a vehicle have been programmed into the vehicle so that it can calculate the speed and distance the vehicle has traveled. A vehicle equipped with a smaller tire size than the OEM sized wheel will be overestimated on the speedometer and recorded in the ACM. A vehicle equipped with a larger tire size than the OEM sized tire will be underestimated on the speedometer and recorded in the ACM.

The Tesla Cybertruck was equipped with the manufacturer's recommended tire size of LT285/65R20. Therefore, no tire size adjustment was made. There was no evidence of changes to the final drive axle ratio of the vehicle, so no final drive axle ratio changes were made. For the first one and a half seconds of Pre-Crash data, the service brake was not applied, the anti-lock brake system (ABS) was inactive, and the stability control was inactive. Therefore, no adjustments for wheel lock-up or wheel slip were made. Previous research has shown that a speedometer can have a variance up to 4% based on differences in mechanical wear on tires or measuring components,[5] so the speeds were ranged by that amount.

[5] Ruth, Richard, *Applying Automotive EDR Data to Traffic Crash Reconstruction*, Society of Automotive Engineers, Seminar, 2013

EVENT DATA RECORDER

2024 Tesla Cybertruck

Pre-Crash Data

The Tesla Cybertruck was recorded to be traveling at a speed of 130 kilometers per hour (80.8 miles per hour) at the 5.0 second mark prior to the crash.

TYPE OF ADJUSTMENT	MINIMUM SPEED	MAXIMUM SPEED
Indicated Speed	80.8 miles per hour	80.8 miles per hour
Tire Adjustment (0%)	0.0 miles per hour	0.0 miles per hour
ABS Wheel Slip Adjustment (+0%)	0.0 miles per hour	0.0 miles per hour
Speed Adjustment (±4%)	-3.2 miles per hour	+3.2 miles per hour
RANGE OF SPEED	**77.6 MILES PER HOUR**	**84.0 MILES PER HOUR**

The speed of 80.8 miles per hour recorded by the ACM for Event 1 at the 5.0 second mark prior to the crash was adjusted for speed variance. Therefore, the Tesla Cybertruck was determined to be traveling at a speed between 77 and 84 miles per hour.

The pre-crash data indicated the accelerator pedal was depressed at 79% of full application at 5.0 seconds and 61% of full application at 3.5 seconds prior to the crash, but the accelerator pedal was not depressed at any other time in the 5 seconds prior to the crash.

The pre-crash data indicated the service brakes were off from 5.0 seconds to 3.5 seconds prior to the crash, then on from 3.0 seconds to the time of the crash. The ABS was active from 0.5 seconds prior to the crash to the time of the crash.

The pre-crash data indicated the stability control was on and inactive, from 5.0 seconds to 3.5 seconds prior to the crash, then on and active from 3.0 seconds prior to the crash to the time of the crash.

EVENT DATA RECORDER

2024 Tesla Cybertruck

Delta-V, Event 1

The maximum ACM recorded longitudinal Delta-V for this event was -93 kilometers per hour (-57.79 miles per hour). The maximum ACM recorded longitudinal Delta-V occurred 215 milliseconds (0.215 second) after "Time Zero." "Time Zero" is the point where the system senses an event and begins monitoring forces to make a deployment determination. The point at which the system begins monitoring forces is manufacturer dependent. The maximum ACM recorded lateral Delta-V for this event was 10 kilometers per hour (6.21 miles per hour). The maximum ACM recorded lateral Delta-V occurred 100 milliseconds (0.1 second) after "Time Zero." There was no indication of data clipping for either longitudinal or lateral Delta-V.

The end of event is defined in 49 Code of Federal Regulations § 563.5 as the moment at which the resultant cumulative Delta-V within a 20-millisecond time period becomes 0.8 kilometers per hour (0.5 miles per hour) or less. The crash forces were determined to no longer be acting upon the Tesla Cybertruck at 180 milliseconds (0.18 second) after "Time Zero," based on the longitudinal Delta-V chart, on page nine of the EDR Report, and on the lateral Delta-V chart, on page ten of the EDR Report. At 180 milliseconds (0.18 second), the longitudinal Delta-V was -92 kilometers per hour (-57.17 miles per hour) and the lateral Delta-V was 6 kilometers per hour (3.73 miles per hour). The ACM recorded the Delta-V in the longitudinal and lateral directions perpendicular to each other. To determine the magnitude of the total Delta-V the Tesla Cybertruck experienced in Event 1, the maximum longitudinal Delta-V (Δv_{long}) and maximum lateral Delta-V (Δv_{lat}) during the 180 milliseconds must be combined. The total Delta-V was calculated with the following equation:

$$\Delta v_{total} = \sqrt{\Delta v_{lat}{}^2 + \Delta v_{long}{}^2}$$

$$\Delta v_{total} = \sqrt{(3.73)^2 + (-57.17)^2}$$

$$\Delta v_{total} = 57.29 \; miles \; per \; hour$$

The total Delta-V recorded by the ACM of the Tesla Cybertruck was approximately 57 miles per hour.

EVENT DATA RECORDER

2024 Tesla Cybertruck

Delta-V, Event 1

The PDOF the ACM experienced was calculated based on the longitudinal Delta-V (-57.17 miles per hour) and the lateral Delta-V (3.73 miles per hour) at 180 milliseconds (0.18 second). The PDOF was calculated using the following equation:

$$\theta = tan^{-1}\left(\frac{\Delta v_{lat}}{\Delta v_{long}}\right)$$

$$\theta = tan^{-1}\left(\frac{3.73}{-57.17}\right)$$

$$\theta = -3.73\ degrees$$

The PDOF for Event 1 was calculated at approximately -4 degrees. This indicates the force was primarily front to rear with a slight left to right aspect, based on the Cartesian coordinate system of the vehicle.

VEHICLE AUTOMATION DATA

2024 Tesla Cybertruck

Tesla Incorporated (Inc.), the manufacturer of the Tesla Cybertruck designs their vehicles to periodically transmit and store the data that would otherwise also be obtainable from the vehicle itself. While the data is not transmitted continuously, certain events, such as a crash, will cause this data to transmit to the manufacturer. If the damage sustained in the crash damages the radio connection, the data can be obtained from an internal storage, then sent to Tesla for translation. In cases in which the vehicle is unavailable to be imaged directly, this data can be obtained from the manufacturer via owner consent, or a search warrant signed by a magistrate.

While Tesla Inc. collects upwards of 2,000 different proprietary data elements on a continuing basis from its vehicles at various proprietary resolutions, many of the other elements are specific to the actual engineering and operation of the vehicle and were judged to have no bearing on this law enforcement investigation.

The Tesla Autopilot system is a Society of Automotive Engineers (SAE) Level 2: Partial Driving Automation feature. Partial Driving Automation is a driver support feature defined as:

The sustained and operational design domain (ODD)-specific execution by a driving automation system of both the lateral and longitudinal vehicle motion control subtasks of the dynamic driving task (DDT) with the expectation that the driver completes the object and event detection and response (OEDR) subtask and supervises the driving automation system.[6]

This means that the vehicle software may control the lane position and velocity and may respond to roadway hazards when the conditions of the roadway environment permit. It is still expected that the driver stays engaged with the driving task by providing supervision and awareness of the roadway ahead and is responsible for responding to roadway hazards the vehicle software is unable to recognize and respond to in a safe manner.

The information Tesla Inc. distributes upon vehicle purchase, as well as information available in the Tesla Cybertruck user manual, and information online about the Tesla Autopilot system, indicates the driver is responsible for staying engaged in the driving task and actively supervising the automation system.

[6] SAE On-Road Automated Driving Committee, "Taxonomy and Definitions for Terms Related to Driving Automation Systems for On-Road Motor Vehicles," SAE Surface Vehicle Recommended Practice J3016, Rev. 2021-04

VEHICLE AUTOMATION DATA

2024 Tesla Cybertruck

The below italicized text is from the Tesla, Inc. website regarding Autopilot:

> ***Do I still need to pay attention while using Autopilot?***
>
> *Yes. Autopilot is a hands-on driver assistance system that is intended to be used only with a fully attentive driver. It does not turn a Tesla into a self-driving car, nor does it make a car autonomous.*
>
> *Before enabling Autopilot, you must agree to "keep your hands on the steering wheel at all times" and to always "maintain control and responsibility for your car." Once engaged, Autopilot will also deliver an escalating series of visual and audio warnings, reminding you to place your hands on the wheel if insufficient torque is applied. If you repeatedly ignore these warnings, you will be locked out from using Autopilot during that trip.*
>
> *You can override any of Autopilot's features at any time by steering, applying the brakes, or using the cruise control stalk to deactivate.*[7]

On Monday, December 9, 2024, Sergeant Rose located and removed the internal storage from the Tesla Cybertruck and uploaded the raw data to Tesla Inc. servers for translation. On Thursday, December 12, 2024, Sergeant Rose received the translated data via email. The data was provided as a Comma-Separated Value file (2024-11-27.csv).

Pursuant to a signed search warrant obtained by Oakland Area Officer Nedelcu, Tesla Inc. provided one hundred eighteen elements collected from the Tesla Cybertruck during the driving period in question. These data elements were stored in the Media Control Unit (MCU) and included 4,749 lines of data for each element. However, since each data element has its own proprietary criteria for the resolution of the data collected, as well as trigger actions to cause a piece of data to be written to the data log, many of those data lines contained blank spaces.

The data recovered from the MCU began on 11/27/2024 at 10:58:58 UTC (Coordinated Universal Time) and ended on 11/27/2024 at 11:06:57 UTC. UTC was converted to Pacific Daylight Time (PDT) by subtracting 8 hours. Adjusting UTC to PDT, the data recovered from the MCU began on 11/27/2024 at 03:58:58 PDT and ended on 11/27/2024 at 03:06:57 PDT. All vehicle automation data analyzed below will be referenced in UTC time for constancy within the data.

The data recovered from the MCU indicated that the Autopilot State was not available on 11/27/2024 at 11:02:02.681 UTC. The data also indicated that Crash Algorithm Wakeup occurred on 11/27/2024 at 11:06:54.144 UTC.

[7] "Tesla Autopilot and Full Self-driving Capabilities," https://www.tesla.com/support/autopilot (July 6, 2022)

VIDEO ASSESSMENT

2024 Tesla Cybertruck

Overview

Tesla vehicles are equipped with a network of cameras that provide a 360-degree view around the vehicle. These cameras are strategically placed to enhance safety utilizing a feature known as Dashcam, enable autonomous features, and provide security against threats when parked through a feature known as Sentry Mode. The default storage location for video files captured by the cameras mounted on the exterior of the Tesla Cybertruck is a Universal Serial Bus (USB) flash drive located in the glove compartment. The Dashcam feature automatically saves a recording to the USB flash drive when the Tesla Cybertruck detects a safety-critical event, such as a collision or airbag deployment; however, detection can vary and is subject to the vehicle's power sleep, and Autopilot state.[8]

On Wednesday, December 4, 2024, Oakland Area Officer J. Nedelcu, ID 22124, obtained a search warrant signed by the Honorable J. Chin, a Judge of the Superior Court of California, Alameda County, for any electronic data relevant to the crash on November 27, 2024, between 0207 and 0407 hours.

On Monday, December 9, 2024, Sergeant Rose located within the burned/melted glove box of the Tesla Cybertruck a Tesla branded USB flash drive. The USB flash drive was analyzed for its contents. It was determined the USB flash drive had a "RecentClips" folder that contained 27 video files that were relevant to the search warrant. The remaining video files were determined to be outside of the relevant time-period of the warrant and unrelated to the crash. Pursuant to California Penal Code § 1546.1(d)(2), the unrelated video files should be sealed and removed from this supplemental report.

[8] Tesla.com/ownersmanual/cybertruck

VIDEO ASSESSMENT

2024 Tesla Cybertruck

The Tesla Cybertruck was equipped with four cameras that stored data on the USB flash drive. The cameras were labeled Front, Left Repeater, Right Repeater, and Rear. Each video file was approximately one minute in length. The Front camera captured video to the front, the Left Repeater camera captured video rearward from the left side, the Right Repeater camera captured video rearward from the right side, and the Rear camera captured video to the rear of the Tesla Cybertruck. Each video file was named by date, time, and camera location.

The first relevant video file was named 2024-11-27_02-59-02-front.mp4 and the last relevant video file was named 2024-11-27_03-05-03-left_repeater.mp4. The following video files from the USB thumb drive were analyzed:

DATE	TIME	CAMERA	CAMERA	CAMERA	CAMERA
11/27/2024	02:59:02	Front	Left Repeater	Right Repeater	-
11/27/2024	03:00:01	Front	Left Repeater	Right Repeater	Rear
11/27/2024	03:01:03	Front	Left Repeater	Right Repeater	Rear
11/27/2024	03:02:03	Front	Left Repeater	Right Repeater	Rear
11/27/2024	03:03:03	Front	Left Repeater	Right Repeater	Rear
11/27/2024	03:04:03	Front	Left Repeater	Right Repeater	Rear
11/27/2024	03:05:03	Front	Left Repeater	Right Repeater	Rear

VIDEO ASSESSMENT

2024 Tesla Cybertruck

The video files began at 02:59:02 hours with the Tesla Cybertruck parked in the middle garage at [redacted] Estates Drive (adjacent to Somerset Road) in Piedmont with the front facing the house and the rear facing the open garage door. The driver and right front passenger doors were closed, the headlamps turned on, and the Tesla Cybertruck backed out of the garage and down the driveway at approximately 03:02:21 hours.

The Tesla Cybertruck backed to the east onto Somerset Road and pulled forward to the west next to a gray sport utility vehicle that was parked at the north curb. A young male wearing a dark short sleeved shirt walked toward the right side of the Tesla Cybertruck as a young female wearing a black sweatshirt and a young male wearing a white short sleeved shirt exited from the left rear door of the gray sport utility vehicle. A young female wearing a pink sweatshirt walked from the vicinity of the gray sport utility vehicle as all four pedestrians approached the right side of the Tesla Cybertruck. An arm extended out of the open right front passenger's window of the Tesla Cybertruck and shook the hand of the young female wearing the pink sweatshirt. The young male wearing the white short sleeved shirt was carrying a large half gallon sized bottle filled with a clear liquid.

Lightened image clipped from the Right Repeater camera at 03:03:40 hours

VIDEO ASSESSMENT

2024 Tesla Cybertruck

At approximately 03:04:26 hours, the right rear door of the Tesla Cybertruck was opened and the young male wearing the white short sleeved shirt entered the right rear seat while carrying the half gallon sized bottle filled with a clear liquid, followed by the young female wearing the black sweatshirt. The young male wearing the gray short sleeved shirt walked toward the driver's door of the gray sport utility vehicle as the young female wearing the pink sweatshirt walked toward the passenger side of the gray sport utility vehicle. The right rear passenger's door of the Tesla Cybertruck shut and moments later the Tesla Cybertruck drove west on Somerset Road followed by the gray sport utility vehicle.

Image clipped from the Rear camera at 03:05:24 hours

The Tesla Cybertruck rapidly pulled away from the gray sport utility vehicle as it traveled west on Somerset Road and turned left onto Crest Road. The video ended as the Tesla Cybertruck approached Hampton Road at approximately 03:06:02 hours.

PHYSICAL EVIDENCE LOG

Physical Evidence

As part of this investigation, Golden Gate Division MAIT collected the following items of evidence that were booked at the Oakland Area Office:

DATE/TIME COLLECTED	DESCRIPTION	COLLECTED BY	COLLECTION LOCATION
12/09/2024 1103 hours	SanDisk Micro SD Card from the Tesla Cybertruck	Rose	Oliver's Tow
12/09/2024 1211 hours	ACM from Tesla Cybertruck	Rose	Oliver's Tow
12/09/2024 1219 hours	USB thumb drive from the Tesla Cybertruck	Rose	Oliver's Tow

PHOTO/VIDEO LOG

Photographs

During the course of the investigation, 132 digital photographs were taken by Golden Gate Division MAIT. The photographs were transferred to a DVD(s) and were booked into evidence at the Oakland Area Office.

DATE	DESCRIPTION	PHOTOGRAPHER	PHOTOGRAPHS
12/9/2024	Tesla Cybertruck	Ruiz	132

Request for copies of the photographs should be made directly to:

California Highway Patrol
Oakland Area Office
3601 Telegraph Avenue
Oakland, California 94609-2426
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CONCLUSIONS

2024 Tesla Cybertruck

Event Data Recorder

The pre-crash data indicated the Tesla Cybertruck was traveling between 77 and 84 miles per hour at 5.0 seconds prior to the crash.

The pre-crash data indicated the accelerator pedal was depressed at 79% of full application at 5.0 seconds and 61% of full application at 3.5 seconds prior to the crash, but the accelerator pedal was not depressed at any other time in the 5 seconds prior to the crash.

The pre-crash data indicated the service brakes were off from 5.0 seconds to 3.5 seconds prior to the crash, then on from 3.0 seconds to the time of the crash. The ABS was active from 0.5 seconds prior to the crash to the time of the crash.

The total Delta-V experienced by the Tesla Cybertruck was calculated to be 57 miles per hour, which was consistent with the major crash damage observed to the front of the Tesla Cybertruck.

Vehicle Automation Data

It was determined the Autopilot feature was unavailable and not in use during the crash under investigation.

Video Assessment

It was determined the USB flash drive contained 27 video files relevant to the search warrant. The video assessment confirmed the Tesla Cybertruck drove west on Somerset Drive, then south on Crest Drive towards Hampton Road prior to being involved in this traffic crash.

ANNEX

EDR Report – 2024 Tesla Cybertruck