TEAM DIVISION	AGENCY/AREA	CASE NUMBER
Border	CHP San Gorgonio Pass Area	BD-070-25

MAIT INVESTIGATION

LEAD MAIT INESTIGATOR
Officer J. Edmunds, ID 19379, Border Division MAIT Investigator

MAIT PERSONNEL
Sergeant M. Morrin, ID 17861, Border Division MAIT Team Leader
Officer B. Downing, ID 18136, Border Division MAIT Investigator
Officer S. Farber, ID 18558, Border Division MAIT Investigator
Officer J. McBreaty, ID 18871, Border Division MAIT Investigator
Motor Carrier Specialist I (MCS I) B. Clough, ID A13341, Border Division MAIT Investigator
Caltrans Senior Transportation Engineer A. Labrador, P.E. 65294, Border Division MAIT Investigator

SUBPOENAS FOR MAIT PERSONNEL SHOULD BE DIRECTED TO:
California Highway Patrol
Border Division Special Services Command – MAIT
9330 Farnham Street
San Diego, California 92123-1216
Attention: Sergeant M. Morrin

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INTRODUCTION

MAIT Notification

On September 6, 2025, CHP San Gorgonio Pass Area Captain C. Howard, ID 15048, with the concurrence of CHP Border Division executive management, requested MAIT assistance with a fatal-injury crash on Cherry Valley Boulevard at Roberts Street in unincorporated Riverside County. The crash involved a 2018 Tesla Model 3, driven by Gavin Hinkley, with Madeline Fox seated in the right-front passenger seat, and a Riverside County Sheriff's Office (RSO) 2020 Ford Police Interceptor Utility (PIU), driven by RSO Deputy Glynn Wilburn.

The following MAIT personnel responded to the scene:

- Investigator Farber arrived at 1310 hours
- Investigator Edmunds arrived at 1328 hours
- Sergeant Morrin arrived on at 1346 hours
- Investigator Downing arrived at 1412 hours

Scope of Investigation

The scope of this MAIT investigation was limited to the following investigative responsibilities:

- Physical evidence identification, documentation, analysis, and diagramming
- Scene description, including weather conditions and lighting
- Interview and statement of Deputy Wilburn
- Imaging and analysis of event data recorder (EDR) data from the Tesla and Ford
- Inspection and analysis of the mechanical systems of the Tesla and Ford
- Analysis of vehicle dynamics
- Crash sequence
- Determination of areas of impact (AOI)

Throughout this report, unless otherwise indicated, all times, speeds, and measurements are approximate, and date references are for the year 2025. Vehicle-based direction references are oriented from the driver seat looking forward.

SCENE DESCRIPTION AND ANALYSIS

Measurement Equipment

On September 6, MAIT Investigators identified various items of physical evidence at the crash scene. The physical evidence at the scene, as well as five ground control points (GCP), were surveyed using a Global Navigation Satellite System (GNSS) survey system, which consisted of a Leica GS18T RTK (real-time kinematic) rover and a Leica CS20 controller. Investigator Edmunds operated the GNSS and at the conclusion of the survey, the coordinates were exported using the California Zone 6 state plane coordinate (SPC) system, based on the North American Datum of 1983 (NAD 83). Refer to Annex A for a list of coordinates for the points collected during the survey.

Sergeant Morrin utilized a Leica RTC360 to scan and create three-dimensional point clouds of the crash scene. A total of 28 stations were established, and a scan world was created at each station. Leica Register 360 software was used to register and align the stations to an arbitrary coordinate system.

Sergeant Morrin photographed and mapped the crash scene with a small, unmanned aircraft system (sUAS) consisting of an Autel EVO II and associated ground control hardware and applications. Automated flights were conducted to capture a grid pattern of overlapping images covering the scene to document physical evidence, characteristics of the environment, and the locations of the GCP. Images and GCP coordinates were processed using Pix4Dmapper software to produce a point cloud, textured mesh, and orthomosaic[1] map. Pix4Dmapper outputs were created using the same SPC system as the GNSS survey.

[1] An aerial map with uniform scale, comprised of multiple images geometrically corrected for topographic relief, lens distortion, and camera tilt.

SCENE DESCRIPTION AND ANALYSIS

Environment Description

The crash occurred within the intersection of Cherry Valley Boulevard and Roberts Street. The crash location was within an unincorporated portion of Riverside County, at the approximate latitude 33.968688 degrees and longitude -117.025045 degrees.

Cherry Valley Boulevard

Cherry Valley Boulevard westbound, east of Roberts Street, had two through lanes, and a bike lane. The roadway was relatively straight and descended to the west at a 4.8 percent grade. The roadway was bordered to the north by a concrete gutter, a concrete curb, a landscaped area, a sidewalk, and a landscaped area with irrigation cages and electrical control cabinets. The irrigation cages and electrical cabinets were on the northeast corner of the intersection between 20 and 140 feet east of Roberts Street. The #1 lane varied in width from 12.8 to 13.1 feet. The #2 lane varied in width from 11.7 to 12.0 feet and was separated from the #1 lane by one-way clear retroreflective pavement markers and a broken white line, which transitioned to a solid white line, 120 feet east of Roberts Street. The bike lane varied in width from 4.8 to 7.9 feet and was separated from the #2 lane by a 3-foot-wide buffer zone marked by solid white parallel and diagonal lines, which tapered to one broken white line, 115 feet east of Roberts Street. There were “SIGNAL AHEAD” pavement markings in the #1 and #2 lanes, approximately 550 feet east of Roberts Street.

Cherry Valley Boulevard eastbound, east of Roberts Street, had one lane that varied in width from 11.9 to 30.0 feet. The roadway was bordered to the south by a solid white line, an asphalt curb, and a dirt and vegetation area.

Cherry Valley Boulevard westbound and eastbound, east of Roberts Street, were separated by a raised concrete median island with a landscaped dirt and vegetation area, bordered by a concrete curb, yellow lines, and two-way yellow retroreflective pavement markers.

Cherry Valley Boulevard westbound, west of Roberts Street, had two lanes, and a bike lane. The roadway was relatively straight. The roadway was bordered to the north by a concrete gutter, a concrete curb, a landscaped area, a fire hydrant, a “THRU TRAFFIC MERGE LEFT” sign, a sidewalk, and an ascending landscaped embankment. The #1 lane varied in width from 13.2 to 13.4 feet. The #2 lane varied in width from 11.6 to 11.9 feet and was separated from the #1 lane by one-way clear retroreflective pavement markers and a broken white line. The bike lane was 4.8 feet wide and was separated from the #2 lane by a 3-foot-wide buffer zone marked by solid white parallel and diagonal lines.

Cherry Valley Boulevard eastbound, west of Roberts Street, had one through lane and one left turn lane (to Roberts Street northbound). The roadway was bordered to the south by a solid white line, an asphalt dike that transitioned to an asphalt curb, and a dirt area. The left turn lane was 11.1 feet wide and 300 feet long. The #1 lane varied in width from 11.7 to 11.9 feet and was separated from the left turn lane by a solid white channelizing line and one-way clear retroreflective pavement markers. There were two arrow pavement markings identifying the left turn lane and a white limit line at the intersection for both lanes.

Cherry Valley Boulevard westbound and eastbound, west of Roberts Street, were separated by a raised concrete median island, bordered by a concrete curb, yellow lines, and two-way yellow retroreflective pavement markers

SCENE DESCRIPTION AND ANALYSIS

Environment Description

Roberts Street

Roberts Street southbound had a left turn lane (to Cherry Valley Boulevard eastbound) and a right turn lane (to Cherry Valley Boulevard westbound). The roadway was relatively straight and flat. The roadway was bordered to the west by a concrete gutter, a concrete curb, and a sidewalk. The left turn lane was 11.5 feet wide, 78.7 feet long, and ended at a white limit line 24 feet north of the north prolongation of Cherry Valley Boulevard. The right turn lane was 20.0 feet wide and was separated from the left turn lane by a solid white channelizing line. There were two arrow pavement markings identifying the left and right turn lanes.

Roberts Street northbound had one lane which was 20 feet wide. The roadway was bordered to the east by a concrete gutter, a concrete curb, and a sidewalk. Roberts Street northbound and southbound were separated by two-way yellow retroreflective pavement markers and a double yellow line with a black contrast line.

There was an 11-foot-wide white parallel line crosswalk to accommodate pedestrian traffic across Roberts Street to the north of Cherry Valley Boulevard. There was an 11-foot-wide white parallel line crosswalk to accommodate pedestrian traffic across Cherry Valley Boulevard to the east of Roberts Street.

SCENE DESCRIPTION AND ANALYSIS

Traffic Controls

Speed Limit

The posted regulatory speed limit sign on Cherry Valley Boulevard westbound and eastbound was 55 miles per hour (Figure 1 and Figure 2). Roberts Street did not have posted speed limit signs.

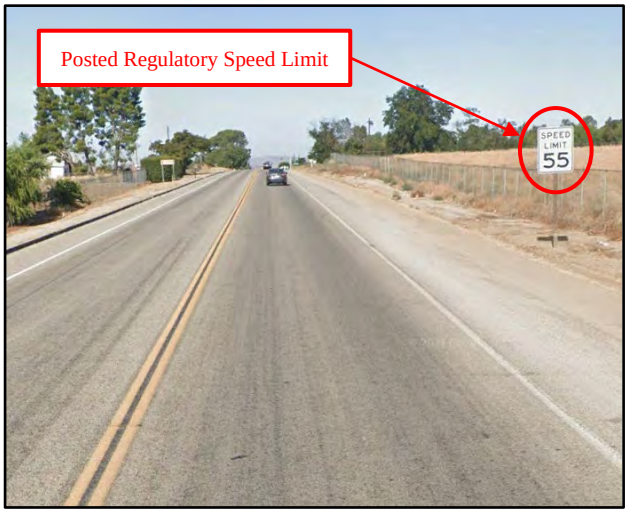


Figure 1. Posted regulatory speed limit sign on Cherry Valley Boulevard westbound, located 1.4 miles east of the crash location. *Source:* Google Earth

Figure 2. Posted regulatory speed limit sign on Cherry Valley Boulevard eastbound, located 0.5 mile west of the crash location. *Source:* Google Earth

Traffic Signals

The intersection was controlled by traffic signals in all directions. Although there were inductive loop detectors located in the traffic lanes, the traffic signal operation at this intersection was actuated by combination video/radar detection cameras installed on the traffic signal mast arm (Figure 3 and Figure 4). Detection cameras only detect vehicles to adjust light timing like a motion sensor. They do not record video or take photos.

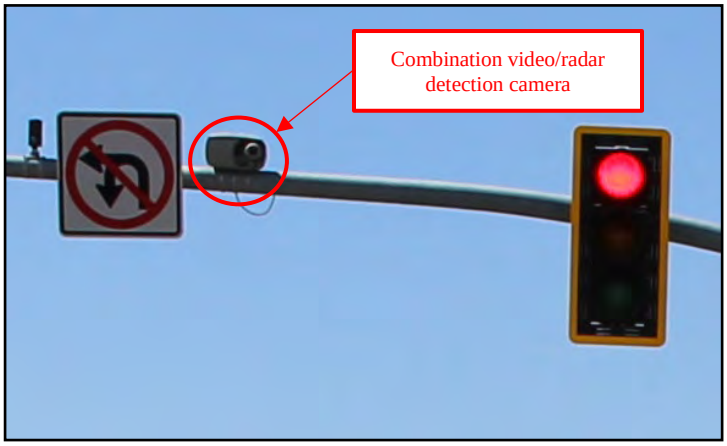


Figure 3. Combination video/radar detection camera facing Cherry Boulevard west direction.

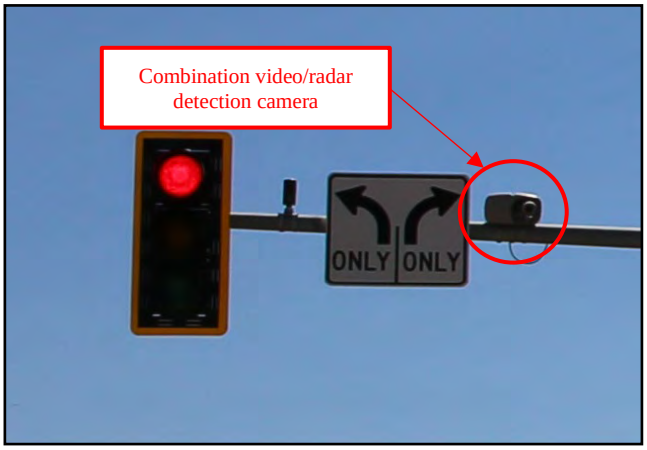


Figure 4. Combination video/radar detection camera facing Roberts Street in the south direction.

SCENE DESCRIPTION AND ANALYSIS

Traffic Controls

Traffic Signals

There were three signal heads with vertical faces supplemented with retroreflective borders directed towards Cherry Valley Boulevard westbound and Roberts Street southbound. The signal heads were installed on the signal and lighting standards (Figure 5 and Figure 6).

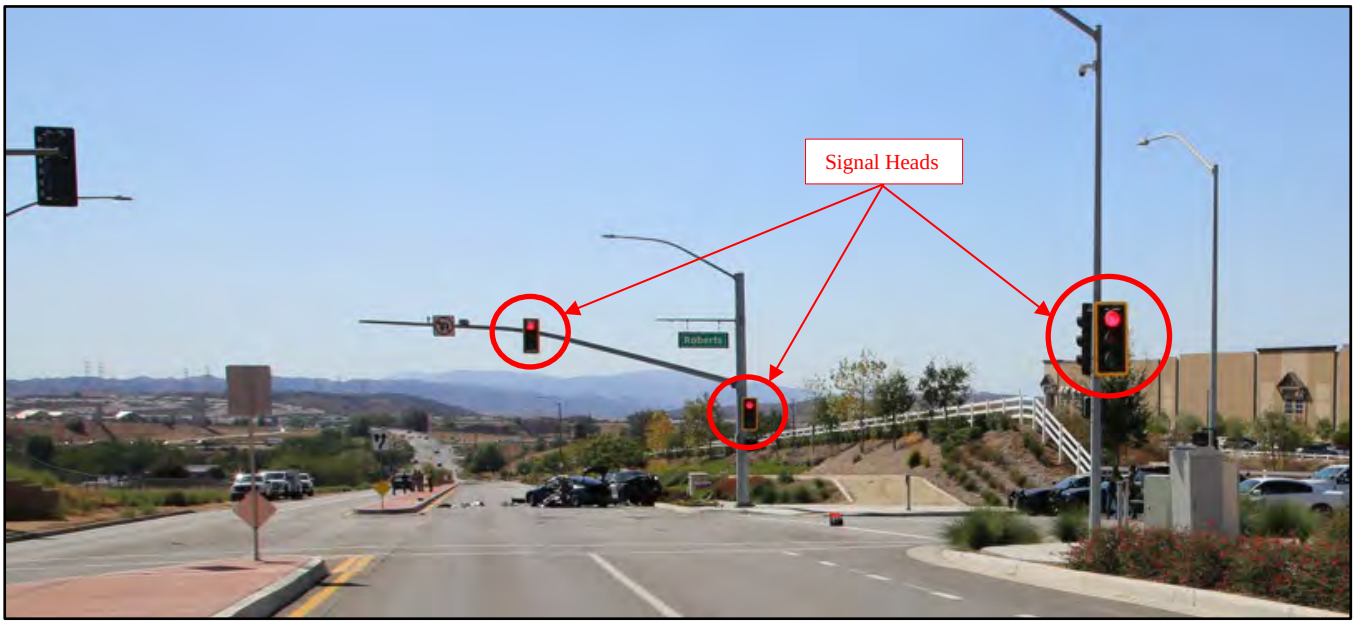


Figure 5. View of three signal heads facing Cherry Valley Boulevard westbound.

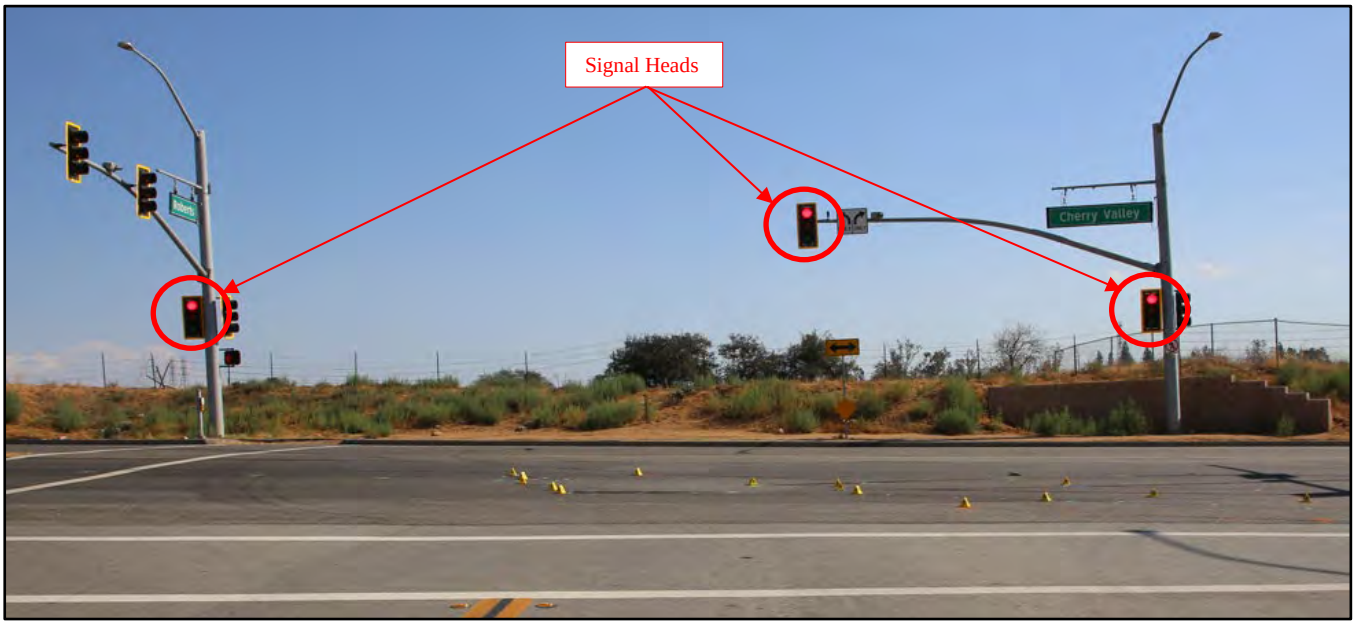


Figure 6. View of three signal heads facing Roberts Street southbound.

SCENE DESCRIPTION AND ANALYSIS

Traffic Controls

Traffic Signal Phasing

The signal phasing and timing plans were obtained from the Riverside County Transportation Department – Lisa Alexen (Figure 7). The traffic signals at this intersection were activated by loop detectors and combination video/radar cameras.

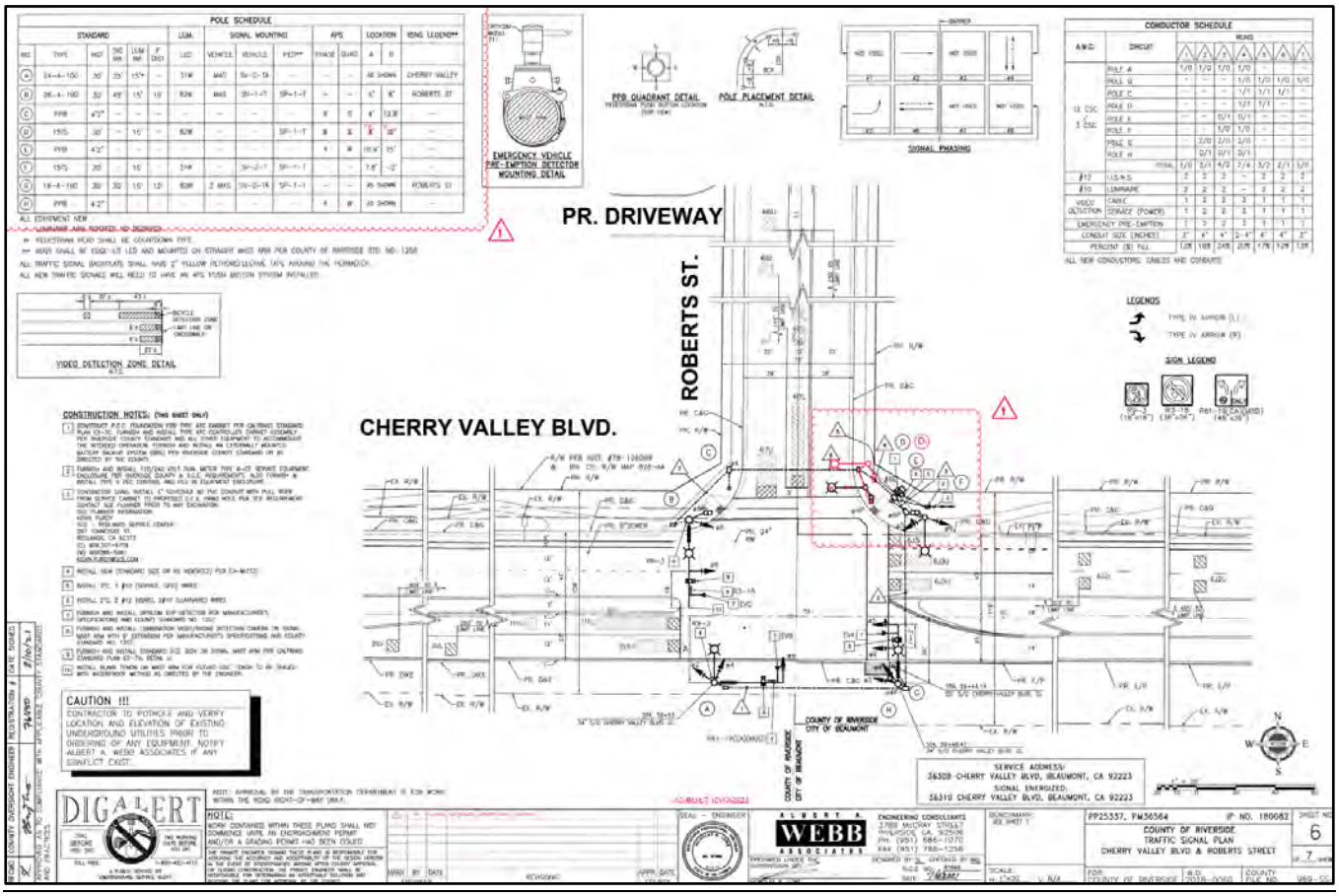


Figure 7. Signal phasing for the intersection of Cherry Valley Boulevard and Roberts Street.

The signal phasing for the intersection of Cherry Valley Boulevard and Roberts Street were as follows:

Phase 1: Not used

Phase 2: Cherry Valley Boulevard eastbound through movement

Phase 3: Not used

Phase 4: Roberts Street South direction (left, or right turn) with pedestrian movement

Phase 5: Cherry Valley Boulevard eastbound left turn movement

Phase 6: Cherry Valley Boulevard westbound with pedestrian movement

Phase 7: Not used

Phase 8: Not used

SCENE DESCRIPTION AND ANALYSIS

Traffic Controls

Traffic Signal Timing

This crash only involved vehicles traveling on Roberts Street southbound (left of right turn) and Cherry Valley Boulevard westbound; therefore, only the listed timing for phases 4 and 6 were analyzed (Figure 8).

County of Riverside
Cherry Valley Blvd & Roberts St > Phases > Phase Timing

2.1 Phase Parameters Set 1	1	2	3	4	5	6	7	8
Min Green	0	6	0	4	4	6	0	0
Passage	0.0	4.0	0.0	3.0	2.5	4.0	0.0	0.0
Max 1	0	50	0	30	25	50	0	0
Max 2	0	0	0	0	0	0	0	0
Max 3	0	0	0	0	0	0	0	0
Max 4	0	0	0	0	0	0	0	0
Yellow Change	0.0	4.3	0.0	4.0	3.0	4.0	0.0	0.0
Red Clear	0.0	1.0	0.0	2.0	1.0	2.0	0.0	0.0
Walk	0	0	0	7	0	7	0	0
Ped Clear	0	0	0	18	0	16	0	0
Added Initial	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
Max Initial	0	0	0	0	0	0	0	0
Time Before Reduction	0	0	0	0	0	0	0	0
Cars Before Reduction	0	0	0	0	0	0	0	0
Time To Reduce	0	0	0	0	0	0	0	0
Reduce By	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Min Gap	0.0	2.5	0.0	3.0	2.5	2.5	0.0	0.0
Dynamic Max Limit	0	0	0	0	0	0	0	0
Dynamic Max Step	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	0.0	2.0	0.0	2.0	2.0	2.0	0.0	0.0
Cond. Service Min	0	0	0	0	0	0	0	0
Alternate Min Green	0	0	0	0	0	0	0	0
Alternate Passage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alternate Walk	0	0	0	0	0	0	0	0
Alternate Ped Clear	0	0	0	0	0	0	0	0
Advanced Walk	0	0	0	0	0	0	0	0
Delay Walk	0	0	0	0	0	0	0	0
Start Delay Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Green Clear	0	0	0	0	0	0	0	0

Figure 8. Cherry Valley Boulevard and Roberts Street phase timing.

The signal timing for phase for 4 and 6 are as follows:

- Phase 4 (Roberts Street southbound): Green, minimum (4.0 seconds), Maximum (30 seconds), Passage (3.0 seconds), Walk (7.0 seconds), Pedestrian Clear (18 seconds), Yellow (4.0 seconds), Added Initial (0 seconds); All red (2.0 seconds)
- Phase 6 (Cherry Valley Boulevard westbound): Green, minimum (6.0 seconds), Maximum (50 seconds), Passage (4.0 seconds), Walk (7.0 seconds), Pedestrian Clear (16 seconds), Yellow (4.0 seconds), Added Initial (2.0 seconds); All red (2 seconds)

While not all-inclusive for Phases 4 and 6, the following information was noted:

- The yellow clearance times were 4 and 4 seconds, respectively.
- The minimum green times were 4 and 6 seconds, respectively.
- The maximum green times were 30 and 50 seconds, respectively.

The added initial times were 0 and 2 seconds, respectively.

SCENE DESCRIPTION AND ANALYSIS

Traffic Controls – Traffic Signal Timing

- When a phase turned green, it would receive the minimum green time by default. If a vehicle was detected by the loop detector and/or combination video/radar cameras, a 3 to 4 seconds green time extension (Passage time) would be given to the phase until it reached the maximum green time.
- If the loop detector(s), and or combination video/radar cameras did not detect the presence of another vehicle after the 2-second count down, the yellow clearance indication would begin without the green time passage/extension.

Stopping Sight Distance

Per the Manual on Uniform Traffic Control Devices (MUTCD) for streets and highways, the minimum sight distance for signal visibility for posted regulatory speed limit of 55 MPH is 625 feet (Figure 9). The stopping sight distance for the posted regulatory speed limit of 55 MPH is 495 feet (Figure 10).

Table 4D-2. Minimum Sight Distance for Signal Visibility

85th-Percentile Speed	Minimum Sight Distance
20 mph	175 feet
25 mph	215 feet
30 mph	270 feet
35 mph	325 feet
40 mph	390 feet
45 mph	460 feet
50 mph	540 feet
55 mph	625 feet
60 mph	715 feet

Note: Distances in this table are derived from stopping sight distance plus an assumed queue length for shorter cycle lengths (60 to 75 seconds).

Figure 9. MUTCD - Minimum sight distance for signal visibility.

Table 6B-2. Stopping Sight Distance as a Function of Speed

Speed*	Distance
20 mph	115 feet
25 mph	155 feet
30 mph	200 feet
35 mph	250 feet
40 mph	305 feet
45 mph	360 feet
50 mph	425 feet
55 mph	495 feet
60 mph	570 feet
65 mph	645 feet
70 mph	730 feet
75 mph	820 feet

* Posted speed, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed

Figure 10. MUTCD – Stopping sight distance as a function of speed.

SCENE DESCRIPTION AND ANALYSIS

Line of Sight

The image below shows the line of sight and sight distance to the traffic signals facing Cherry Valley Boulevard westbound towards the crash location (Figure 11).

Figure 11. View of traffic signals facing Cherry Valley Boulevard westbound, 675 feet east of the signal lights.

SCENE DESCRIPTION AND ANALYSIS

Corner Sight Distance

Due to several electrical control cabinets and irrigation cages located on the northeast corner of the intersection, the view of traffic approaching on Cherry Valley Boulevard westbound was obscured from drivers on Roberts Street. Likewise, the view of traffic approaching on Roberts Street southbound was obscured from drivers on Cherry Valley Boulevard westbound.

Figure 12. View from Cherry Valley Boulevard westbound looking toward Roberts Street southbound

Figure 13. View from Roberts Street southbound looking towards Cherry Valley Boulevard east of the intersection.

SCENE DESCRIPTION AND ANALYSIS

Weather Conditions and Lighting

Engineer Labrador accessed the Weather Underground website [1].The weather station (KCACALIM17) was located 0.7 miles southwest of the crash location (Figure 14).

Time	Temperature	Dew Point	Humidity	Wind	Speed	Gust	Pressure	Precip. Rate.	Precip. Accum.	UV	Solar
9:54 AM	85.9 °F	67.4 °F	54 %	SE	2.6 mph	4.2 mph	29.92 in	0.00 in	0.00 in	5	616.5 w/m²
9:59 AM	85.8 °F	67.5 °F	54 %	ESE	2.8 mph	4.0 mph	29.92 in	0.00 in	0.00 in	5	616 w/m²
10:04 AM	86.0 °F	66.8 °F	53 %	SE	2.7 mph	4.3 mph	29.92 in	0.00 in	0.00 in	6	617.7 w/m²
10:09 AM	86.2 °F	67.5 °F	54 %	SE	2.5 mph	3.7 mph	29.92 in	0.00 in	0.00 in	6	642 w/m²
10:14 AM	87.3 °F	67.3 °F	51 %	South	2.6 mph	4.3 mph	29.92 in	0.00 in	0.00 in	6	669.8 w/m²

Figure 14. Weather history and observations for September 6.

Lighting

This crash occurred during the daylight hours. Engineer Labrador obtained the solar data (Figure 15) from the SunCalc website [2].

Location: 36500 Cherry Valley Blvd, Beaumont, CA, 92223, USA
Time: 06.Sep.2025, 10:03 UTC-7

Solar data for the Location		Geo data for the Location		
Dawn:	06:00:10	Height:		743m
Sunrise:	06:25:11	Latitude:	N 33°58'7.31"	33.96870°
Sun peak level:	12:46:16	Longitude:	W 117°1'30"	-117.02500°
Sunset:	19:06:48	Timezone:	America/Los_Angeles PDT	
Dusk:	19:31:46			
Duration:	12h41m37s			
Altitude:	43.16°			
Azimut:	117.01°			
Shadow length:	1.07	at an object level: 1m		

Figure 15. Solar data for September 6.

CHERRY VALLEY BOULEVARD
AT
ROBERTS STREET

STATE OF CALIFORNIA
DEPARTMENT OF CALIFORNIA HIGHWAY PATROL
MULTIDISCIPLINARY ACCIDENT INVESTIGATION TEAM (MAIT) REPORT
CHP 555 (Rev. 9-25) OPI 060 ***(MAIT use only)***

DATE OF INCIDENT (MONTH-DAY-YEAR)	TIME (2400)	DOC	OFFICER I.D.	AGENCY/AREA CASE NUMBER	MAIT CASE NUMBER	PAGE
09/06/2025	1003	9655	19871	9655-2025-01454	BD-070-25	13

ENVIRONMENT DIAGRAM
PREPARED BY: J. EDMUNDS, ID 19379

SCALE
0 40 80

LEGEND

- A - ASCENDING LANDSCAPED EMBANKMENT
- B - CONCRETE SIDEWALK (TYPICAL)
- C - LANDSCAPED AREA (TYPICAL)
- D - CONCRETE GUTTER AND CURB (TYPICAL)
- E - BUFFER ZONE (TYPICAL)
- F - BROKEN WHITE LINE (TYPICAL)
- G - ONE-WAY CLEAR RETROREFLECTIVE PAVEMENT MARKER (TYPICAL)
- H - TWO-WAY YELLOW RETROREFLECTIVE PAVEMENT MARKER (TYPICAL)
- I - SOLID YELLOW LINE (TYPICAL)
- J - RAISED CONCRETE MEDIAN ISLAND
- K - SOLID WHITE CHANNELIZING LINE (TYPICAL)
- L - SOLID WHITE LINE (TYPICAL)
- M - ASPHALT CONCRETE DIKE
- N - DIRT AREA
- O - ASPHALT CONCRETE CURB
- P - WHITE LIMIT LINE (TYPICAL)
- Q - DOUBLE YELLOW LINE (TYPICAL)
- R - TURN ARROW PAVEMENT MARKER (TYPICAL)
- S - ELECTRICAL CONTROL CABINETS AND IRRIGATION CAGES
- T - PEDESTRIAN SIGNAL CONTROL (TYPICAL)
- U - SIGNAL AND LIGHTING STANDARD (TYPICAL)
- V - PEDESTRIAN SIGNAL STANDARD (TYPICAL)
- W - LIGHTING STANDARD (TYPICAL)
- X - GROUND CONTROL POINT (TYPICAL)
- Y - CROSSWALK (TYPICAL)
- Z - SIGNAL AHEAD PAVEMENT MARKER

PHYSICAL EVIDENCE DESCRIPTION AND ANALYSIS

Physical Evidence

Table 1 contains a list of the physical evidence items identified and documented in measurements and photographs at the scene. Physical evidence items were analyzed in conjunction with damage sustained by the Ford, the Tesla, and the motion of the vehicle during the crash sequence to determine the origin of each physical evidence item. Refer to the Physical Evidence diagrams for the location of each item.

Table 1
Physical Evidence Identified and Documented During by MAIT Investigators

Item	Point(s)	Item Description and Origin
1	1-7	A tire friction mark, 45.1 feet in length and varying in width between a tapered point and 0.4 feet, created by the left-front tire of the Ford prior to and during impact with the Tesla
2	8-11	A tire friction mark, 4.6 feet in length and varying in width between 0.5 and 0.8 foot, created by the left-front tire of the Tesla as the vehicle translated in a westerly direction while rotation counterclockwise about its vertical axis, during and after the impact with the Ford
3	12-13	A gouge, 0.5 foot in length and varying in width between 0.1 and 0.2 foot, created by undetermined undercarriage components of the Ford or the Tesla during the impact between the vehicles
4	14-24	An area of scrapes, 6.3-by-2.3 feet, created by undetermined undercarriage components of the Ford or the Tesla during the impact between the vehicles
5	25-27	A gouge, 1.6 feet in length and varying in width between 0.1 and 0.2 foot, created by undetermined undercarriage components of the Ford or the Tesla during the impact between the vehicles
6	28-33	A tire friction mark, 8.4 feet in length and varying in width between a taper point and 1.1 feet, created by the left-rear tire of the Tesla as the vehicle translated in a westerly direction while rotation counterclockwise about its vertical axis, during and after the impact with the Ford
7	34-37	A tire friction mark, 12.0 feet in length and varying in width between 0.4 and 0.7 foot, created by the right-front tire of the Tesla as the vehicle translated in a westerly direction while rotation counterclockwise about its vertical axis, after the impact with the Ford
8	38-48	A tire friction mark, 79.9 feet in length and varying in width between 0.1 and 0.8 foot, created by the right-rear tire of the Tesla as the vehicle translated in a westerly direction while rotation counterclockwise about its vertical axis, after the impact with the Ford

(*table continues*)

PHYSICAL EVIDENCE DESCRIPTION AND ANALYSIS

Physical Evidence

Item	Point(s)	Item Description and Origin
9	49-62	A tire friction mark, 91.5 feet in length and varying in width between a tapered point and 0.7 foot, created by the left-front tire of the Tesla as the vehicle translated in a westerly direction while rotation counterclockwise about its vertical axis, after the impact with the Ford
10	63-74	A tire friction mark, 85.3 feet in length and varying in width between a taper point and 0.6 foot, created by the left-rear tire of the Tesla as the vehicle translated in a westerly direction while rotation counterclockwise about its vertical axis, after the impact with the Ford
11	75-78	A tire friction mark, 6.7 feet in length and 0.1 foot in width, created by the right-front tire of the Ford as the vehicle translated in a northwesterly direction, after the impact with the Tesla
12	79-84	A tire friction mark, 17.7 feet in length and varying in width between 0.6 and 1.0 foot, created by the left-rear tire of the Ford as the vehicle translated in a northwesterly direction, after the impact with the Tesla
13	85-90	A tire friction mark, 13.5 feet in length and varying in width between a taper point and 0.7 foot, created by the right-front tire of the Ford as the vehicle translated in a northwesterly direction, after the impact with the Tesla
14	91-94	A tire friction mark, 27.1 feet in length and varying in width between 0.3 and 0.4 foot, created by the right-front tire of the Tesla as the vehicle translated in a westerly direction while rotation counterclockwise about its vertical axis, after the impact with the Ford
15	95-109	An area of scrapes, 38.5 feet in length and 1.9 feet wide, created by undetermined undercarriage components of the Ford as the vehicle translated in a northwesterly direction, after the impact with the Tesla
16	110-113	A tire friction mark, 6.2 feet in length and varying in width between 0.1 and 0.7 foot, created by the left-front tire of the Ford as the vehicle translated in a northwesterly direction, after the impact with the Tesla
17	114-118	A tire friction mark, 10.5 feet in length and varying in width between 0.8 and 1.0 foot, created by the right-rear tire of the Ford as the vehicle translated in a northwesterly direction, onto the sidewalk at the northwest corner of the intersection, prior to and during impact with the curb
18	119-122	A gouge, 0.5 foot in length and 0.2 foot in width, created by the right-rear wheel of the Ford impacting the concrete curb as the Ford translated in a northwesterly direction, after the impact with the Tesla

(*table continues*)

PHYSICAL EVIDENCE DESCRIPTION AND ANALYSIS

Physical Evidence

Item	Point(s)	Item Description and Origin
19	123-127	A tire friction mark, 14.6 feet in length and varying in width between 0.4 and 1.2 foot, created by the right-front tire of the Ford as the vehicle translated in a northwesterly direction and rotated clockwise about its vertical axis, prior, during, and after the Ford impacted the concrete curb, lighting and signal standard, and fire hydrant
20	128-133	An area of scrapes and black transfer, 3.3 feet in height and 1.5 feet in length, created by the right side of the Ford as the vehicle impacted the lighting and signal standard
21	134-145	An area of scrapes, 21.9-by-0.9 foot, created by undetermined undercarriage components of the Ford impacting the concrete gutter and curb, as the vehicle translated in a northwesterly direction
22A	146	The center of the fire hydrant base, 0.9 foot in diameter. The fire hydrant was displaced when the right front of the Ford impacted the fire hydrant
22B	147-149	A fire hydrant, 2.9 feet tall and 1.1 foot wide, displaced from its base when the right front of the Ford impacted the fire hydrant
23	150-153	A tire friction mark, 6.2 feet in length and varying in width between a tapered point and 0.3 foot, created by the left-front tire of the Ford as the vehicle translated in a northwesterly direction and rotated clockwise about its vertical axis
24	154-159	A furrow, 30.8 feet in length and varying in width between 0.6 and 0.8 foot, created by undetermined undercarriage components of the Ford as the vehicle translated in a westerly direction and rotated clockwise about its vertical axis
25A	160	A signpost hole, 0.5 foot in diameter, created when the front of the Ford struck and displaced the “THRU TRAFFIC MERGE LEFT” sign
25B	161-166	A “THRU TRAFFIC MERGE LEFT” sign and post, displaced when the front of the Ford impacted the signpost
26	167-173	A tire friction mark, 34.3 feet in length and varying in width between 0.1 and 1.0 foot, created by the left-rear tire of the Ford as the vehicle translated in a westerly direction and rotated clockwise about its vertical axis
27	174-176	A tire friction mark, 8.2 feet in length and varying in width between 0.5 and 0.7 foot, created by the right-front tire of the Tesla as the vehicle translated in a westerly direction while rotating counterclockwise about its vertical axis
28	177-186	An area of displaced dirt and vegetation, 53.9 feet in length and 9.4 feet in width created by the Ford as it translated through the landscaped dirt and vegetation area and during impact with the fire hydrant and “THRU TRAFFIC MERGE LEFT” sign
29	187-189	A tire friction mark, 3.0 feet in length and 0.5 foot in width, created by the right-rear tire of the Ford as the vehicle translated in a westerly direction to its position of rest

(*table continues*)

PHYSICAL EVIDENCE DESCRIPTION AND ANALYSIS

Physical Evidence

Item	Point(s)	Item Description and Origin
30	190-218	An area of vehicle debris, 197.3 feet in length and 59.3 feet in width, detached from the Tesla and the Ford during and after the impact between the two vehicles
N/A	219-222	The position of the wheels of the 2018 Tesla Model 3 [California license plate 9AJZ026] at its position of rest
N/A	223-226	The position of the wheels of the 2020 Ford PIU [California license plate 1585138] at its position of rest

CHERRY VALLEY BOULEVARD
AT
ROBERTS STREET

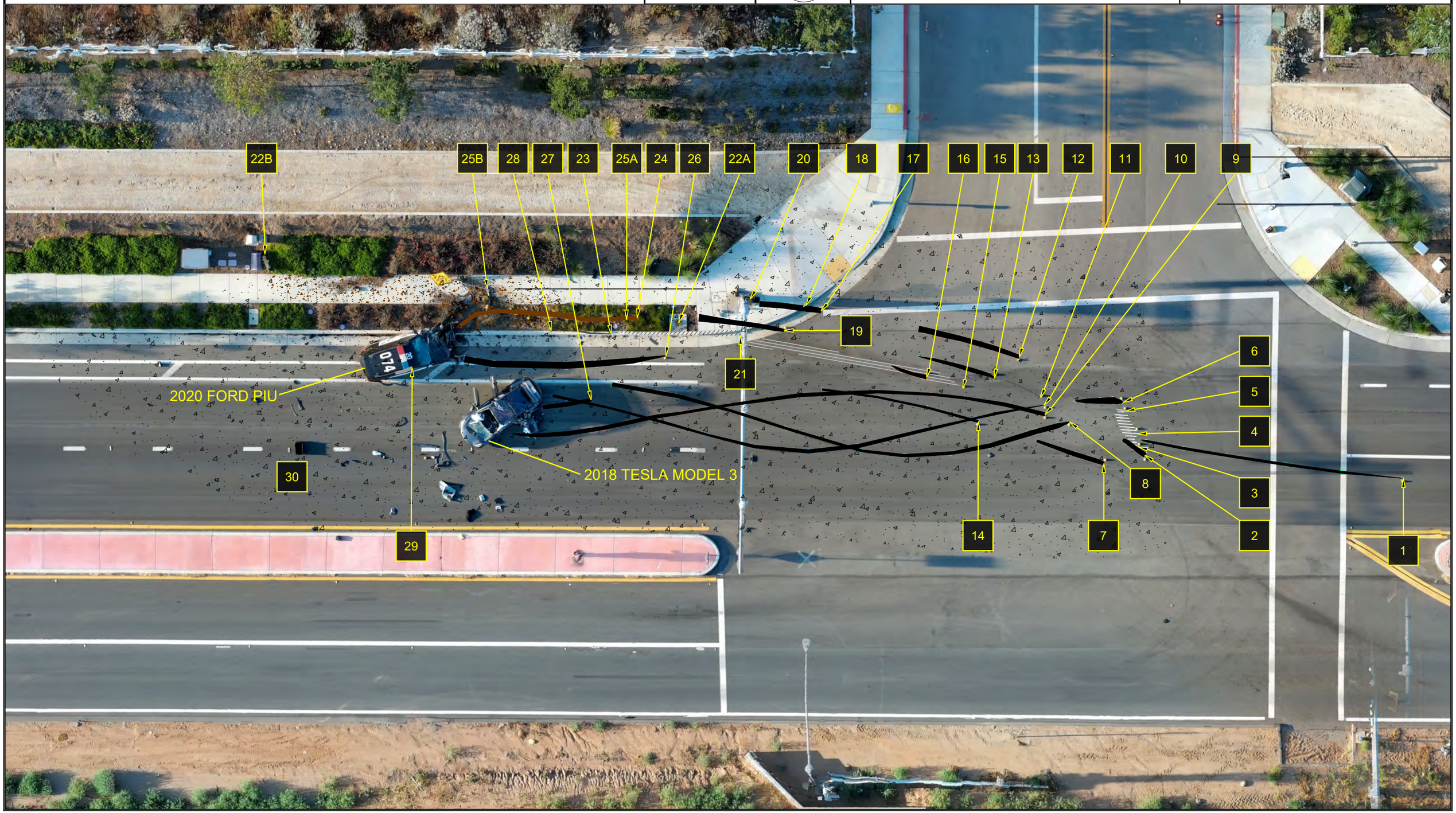
STATE OF CALIFORNIA
DEPARTMENT OF CALIFORNIA HIGHWAY PATROL
MULTIDISCIPLINARY ACCIDENT INVESTIGATION TEAM (MAIT) REPORT
CHP 558 (Rev. 9-25) OPI 060 ***(MAIT use only)***

DATE OF INCIDENT (MONTH-DAY-YESAR)	TIME (2400)	NCIC	OFFICER I.D.	AGENCY/AREA CASE NUMBER	MAIT CASE NUMBER	PAGE
09/06/2025	1003	9655	19871	9655-2025-01454	BD-070-25	18

PHYSICAL EVIDENCE DIAGRAM

PREPARED BY: J. EDMUNDS, ID 19379

SCALE 0' 15' 30'



CHERRY VALLEY BOULEVARD
AT
ROBERTS STREET

STATE OF CALIFORNIA
DEPARTMENT OF CALIFORNIA HIGHWAY PATROL
MULTIDISCIPLINARY ACCIDENT INVESTIGATION TEAM (MAIT) REPORT
CHP 558 (Rev. 9-25) OPI 060 ***(MAIT use only)***

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09/06/2025	1003	9655	019871	9655-2025-01454	BS-070-25	19

DYNAMICS DIAGRAM

PREPARED BY: J. EDMUNDS, ID 19379

SCALE 0' 15' 30'

FORD (AT-IMPACT WITH LIGHTING AND SIGNAL STANDARD)

FORD (AT-IMPACT WITH FIRE HYDRANT)

FORD (RIGHT-REAR WHEEL AT-IMPACT WITH CONCRETE CURB)

FORD (AT-IMPACT WITH SIGN)

FORD (POSITION OF REST)

FORD (RIGHT-FRONT WHEEL AT-IMPACT WITH CONCRETE CURB)

2020 FORD PIU (AT-IMPACT WITH TESLA)

TESLA (POSITION OF REST)

2018 TESLA MODEL 3 (AT-IMPACT WITH FORD)

STATEMENTS

Deputy Glynn Wilburn

On September 17, 2025, at 1439 hours, Investigators Edmunds and Downing, along with CHP San Gorgonio Pass Area Officer E. Digati, ID 20664, contacted Deputy Wilburn in the conference room of the CHP San Gorgonio Pass Area office. Deputy Wilburn was accompanied by Riverside Sheriffs' Association Attorney, Maurice Sinsley.

The interview was digitally recorded, and the following is a summary. For additional details, refer to the recording.

At the time of the crash and interview, Deputy Wilburn was a full-time peace officer employed by RSO for sixteen years and had been at his current assignment since November of 2022. Deputy Wilburn stated he was assigned to A-Shift during the hours of 0700 to 1900, and that he was on day number four of his "long week."

At 1000 hours, Deputy Wilburn was parked at the Calvary Chapel church located at 1780 Orchard Heights Avenue, south of the intersection of Brookside Avenue at Winesap Avenue. Sometime later, Deputy Wilburn heard an audible tone from his mobile digital computer (MDC) which alerted him to a high priority call. The call was for a suspicious circumstance, with a female injured due to shots being fired, in the city of Calimesa. He heard a Calimesa deputy was assigned to the call and that Deputy Scott acknowledged the call and began to respond. Due to the high priority nature of the call, Deputy Wilburn also began to respond. Code 3 driving response was authorized per RSO Sergeant Lugo.

Prior to leaving the church, Deputy Wilburn utilized his cellphone to see where (via GPS) the call was located. He saw the call was on Singleton Road near the vicinity of Singleton County Road, and that he had an idea of how he was going to get there without the aid of his phone. Deputy Wilburn couldn't remember where he placed his phone prior to leaving, but stated he didn't use it while driving so he could maintain better observations around him.

Deputy Wilburn activated his Code 3 emergency lights, siren, and began to proceed west on Brookside Avenue, and cleared the intersections of Cherry Avenue and Beaumont Avenue. Deputy Wilburn stated he knew his Code 3 lights were working because he could see the lights as he looked left and right out toward Brookside Avenue, the lights being reflected off the vehicles as he passed them, and that he could hear the siren. He related cars were moving out of his way as they responded to his emergency lights and siren. Deputy Wilburn turned right onto Beaumont Avenue and continued north toward Cherry Valley Boulevard.

Deputy Wilburn related that he chose this route due to knowing a nearby school (Beaumont High School) was in session, pedestrian and vehicular traffic would be light, and that Cherry Valley Boulevard would allow him access to the freeway. He cleared the intersection at Cherry Valley Boulevard, turned left, and continued west on Cherry Valley Boulevard. During this time, he observed no pedestrians and traffic was still light. While he traveled west on Cherry Valley Boulevard, Deputy Wilburn cleared the intersections of Nancy Avenue, Union Street, and Hannon Road.

STATEMENTS

Deputy Glynn Wilburn

Deputy Wilburn related he accelerated his patrol vehicle up to a maximum speed of 80 miles per hour, with due regard to make sure that speed was not detrimental to others. He continued west on Cherry Valley Boulevard from the last stop sign (at Hannon Street). Deputy Wilburn related as he neared the business district and warehouses, several vehicles yielded to the right, and he slowed and increased his vehicle speed as he passed each one.

As he approached the intersection and signal light at Roberts Street, he looked to the right, and confirmed there were no cars at the limit line, or crosswalk, of Roberts Street. Deputy Wilburn made his way around another vehicle by passing it on its left side, within the number one lane, but could not remember if this car was stopped or pulling to the right.

After passing by the last vehicle, Deputy Wilburn noticed the signal light at the intersection was red, and a gray Tesla was stopped within the intersection. Deputy Wilburn clarified by stating, "I had the red." The Tesla was past the number two lane (for Cherry Valley Boulevard), was stopped within the middle of the number one lane and making a left turn to go east on Cherry Valley Boulevard.

At that time, Deputy Wilburn attempted to avoid a crash with the Tesla by braking and steering his patrol vehicle to the right, toward the rear of the Tesla, in hopes that the Tesla would continue out of his way. Deputy Wilburn related that the pressure he applied to the brakes caused the patrol vehicle to skid and slow to 60 miles per hour, and the next thing he remembered was colliding with the Tesla.

Deputy Wilburn couldn't recall if he rotated to the left or right, just that he had stopped facing east on Cherry Valley Boulevard (west of the intersection). He checked himself for injuries and was able to exit his patrol vehicle by opening the driver door. He was immediately approached by several bystanders who wanted to make sure he was OK. Deputy Wilburn recalled a male had checked on him and said that he would also check on the occupants of the Tesla. This bystander had told him the driver of the Tesla was nonresponsive, and the right-front passenger had a pulse and some level of alertness.

Deputy Wilburn related he was emotionally affected by the crash but was still able to immediately notify his dispatch of the patrol-vehicle-involved crash and location. CalFire and paramedics arrived on scene shortly thereafter.

Deputy Wilburn was not utilizing his seat belt at the time of the crash and sustained injuries which included abrasions to the top of his head, swelling to the base of his neck, and complaint of pain to his left arm and left knee, and overall soreness to his body.

Deputy Wilburn confirmed his own body-worn camera (BWC) device was not activated at the time of the crash, or during his response to the high priority call prior to the crash, and the BWC was in the driver-side door handle of the patrol vehicle.

STATEMENTS

Deputy Glynn Wilburn

Deputy Wilburn completed his academy training through the Golden West College Regional Criminal Justice Training Center, a POST-certified academy located in Huntington Beach which serves multiple agencies. During his academy and field training, Deputy Wilburn completed emergency vehicle operations (EVOC) training. Following his graduation, he entered a six-month long training phase while assigned to the RSO-Palm Desert Station.

During his career, Deputy Wilburn related he had driven over 100 Code 3 runs and had not been involved in any previous crash while on duty.

Deputy Wilburn related the patrol vehicle he was driving at the time of the crash had been assigned to him for one month, and other than minor work order requests for the back-up camera, radio, public address microphone and an oil change, there were no mechanical issues with the patrol vehicle.

Deputy Wilburn related he consumed three 12-ounce cans of Coors Light with dinner the night before his shift, and had stopped drinking at 2130 hours, before showering and going to bed. He woke up around 0400 hours the morning of the crash and felt well-rested. Deputy Wilburn got ready for work and left his residence at 0614 hours. He arrived at work between 0630 to 0635 hours.

Deputy Wilburn was cooperative, forthcoming, and appeared to be remorseful during the interview.

MECHANICAL INSPECTION

2020 Ford Police Interceptor Utility

Introduction

On September 25, MCS I Clough and Investigator Edmunds conducted a mechanical inspection of the Ford while the vehicle was stored at Stagecoach Towing, in the city of Banning. Information related to the inspection is summarized in Table 2.

Table 2
Information Related to the Inspection

Manufacturer	Ford Motor Company
Model year	2020
Make	Ford
Model	Police Interceptor Utility
Body type	Sport utility vehicle
Drive type	All-wheel drive
Color	Black/white
License [state]	1585138 [California]
Vehicle identification number (VIN)	1FM5K8AW5LGB66667

The pre-inspection condition of the Ford is depicted in the following images:

Figure 16. Front of the Ford.

Figure 17. Rear of the Ford.

Figure 18. Left side of the Ford.

Figure 19. Right-side of the Ford.

MECHANICAL INSPECTION

2020 Ford Police Interceptor Utility – Introduction

The purpose of this inspection was to collect data necessary to document the post-crash mechanical condition of the Ford and to identify any mechanical factor(s) that may have contributed to, and/or caused this crash. Some inspected systems contained electronic components, which could not be inspected due to the post-crash condition of the Ford. The mechanical components inspected on this vehicle were part of the following systems:

- Engine and Throttle
- Steering and Suspension
- Service brakes
- Tires and Wheels

Unless otherwise indicated, each component system had a functional appearance or functioned appropriately when tested.

Engine and Throttle

The Ford was equipped with a hybrid powertrain including a longitudinally-mounted, 3.3-liter, gasoline engine mated mechanically and electronically to an electric motor, all working with a 10-speed automatic transmission and a battery pack. The Ford was arranged in a front engine, all-wheel-drive powertrain configuration.

The fuel induction system consisted of a single-bore, electro-mechanical throttle body for airflow regulation, and sequential fuel injection for fuel regulation. The throttle system utilized a manually-operated accelerator pedal assembly, which was mounted to the occupant side of the bulkhead within the driver footwell. An electronic position sensor was enclosed in a plastic housing attached to the floor pan and above the accelerator pedal. A wiring harness was securely attached to the electronic throttle control (ETC) assembly. The throttle system was supplemented with an electronic speed control system, which was integral with the ETC assembly.

Testing of the accelerator pedal and throttle was conducted separately due to damage sustained during the crash. When manual force was applied to the accelerator pedal, it moved freely throughout its range of motion. The air pipe was detached from the throttle body housing. The throttle body had glass and debris in the housing. This condition was caused during the crash. When manual force was applied to the throttle plate, it moved freely throughout its range of motion. The accelerator pedal, and throttle plate returned to the closed (idle) position when they were released.

MECHANICAL INSPECTION

2020 Ford Police Interceptor Utility

Steering and Suspension

The adjustable steering column tilt control lever was located under the left-side of the steering column and was in the upper, locked position. The components enclosed within the steering column were not inspected.

Tie rod assemblies were used to connect the steering gear to the left- and right-side steering knuckles. Each tie rod assembly consisted of an inner tie rod, an outer tie rod end, and a lock nut. Each tie rod assembly utilized ball socket joints. The left- and right-side inner joints had no discernable movement. The intermediate shaft was detached from the steering gear. Due to this condition, there was no correlating movement at the steering knuckles when the steering wheel was manipulated. The steering gear and surrounding components were fractured and displaced rearward. The left-steering knuckle was fractured at the outer tie rod mount (Figure 20). The exposed fractured surface had a rough crystalline appearance, which is characteristic of an instantaneous failure that is usually associated with a shock load. A shock load is a sudden and powerful force that exceeds the strength of the metal.

Figure 20. Fractured left steering knuckle.

MECHANICAL INSPECTION

2020 Ford Police Interceptor Utility – Steering and Suspension

The steering axle was equipped with an independent coil-spring suspension. The wheels were independently connected to the frame, utilizing strut assemblies, steering knuckles, and ball joint assemblies at both sides. Strut assemblies at each side dampened the suspension. A sway bar supplemented the suspension. The left- and right-front suspension components sustained multiple fractures and were displaced rearward (Figure 21 and Figure 22). The exposed fractured surfaces had a rough crystalline appearance.

Figure 21. Displaced left-side suspension.

Figure 22. Displaced right-side suspension.

The rear axle was equipped with an independent coil-spring suspension. The wheels were independently connected to the frame, utilizing coil springs, control arms, and shock absorbers. Shock absorbers were mounted to the frame and connected on each side to the knuckles. The left-rear suspension components were unremarkable. The right-rear lower control arm was fractured, and the coil spring was displaced (Figure 23). The exposed fractured surfaces had a rough crystalline appearance. This condition was caused by contact with the Tesla, and/or other roadway objects during the crash.

Figure 23. Fractured right-rear lower control arm.

MECHANICAL INSPECTION

2020 Ford Police Interceptor Utility

Service Brakes

Information related to the service brakes and antilock brake system (ABS) is summarized in Table 3.

Table 3
Information Related to the Service Brakes and ABS

Element	Data
System type	Vacuum-assisted hydraulic
Master cylinder material	Aluminum
Reservoir chambers/material	Dual/plastic
Brake type [front]	Ventilated disc
Brake type [rear]	Ventilated disc
Brake pad material [front]	Ceramic
Brake shoe material [rear]	Ceramic
Caliper type [front]	Dual piston: Floating
Caliper type [rear]	Single piston: Floating
Circuit type	Dual
Brake fluid level	Within operating range
ABS (front/rear/both)	Both
ABS sensors/channels	4/4
ABS fluid lines	Rigid/flexible

The base brake system was supplemented with a four-channel, four-sensor, integral ABS. The electric operated parking brake was found in the unapplied position. Due to the post-crash condition of the Ford, the parking brake was not tested.

The brake pedal assembly was mounted to the occupant side of the bulkhead within the driver footwell. The brake booster was mounted to the forward side of the driver footwell and connected directly to the brake pedal by a pin and retaining clip. The dual circuit, alloy master cylinder was mounted to the forward side of the brake booster. The master cylinder used a single-chamber reservoir that was internally divided. The translucent reservoir supplied both halves of the system with brake fluid. The reservoir was present and had an adequate fluid level. The brake master cylinder and hydraulic brake booster were unremarkable. When manual force was applied to the brake pedal, and manual force applied to the brake rotors, the left-front and both rear brake rotors were held stationary. The right-front brake rotor rotated freely while the brake pedal was applied. Damage to the rigid brake line caused a restriction to that brake caliper. Due to the crash damage sustained to the Ford, the location of the brake line damage was not determined.

MECHANICAL INSPECTION

2020 Ford Police Interceptor Utility – Service Brakes

The overall material thicknesses of the friction surfaces of the brake pads and swept areas of the brake rotors were measured in millimeters (Table 4).

Table 4
Measured Minimum Brake Pad Friction Material and Rotor Specifications

	Thicknesses (measured/minimum)	
Position	Brake Pad	Brake Rotor
Front		
Left – inner	10.0/1.5	31.4/30.5
Left – outer	10.0/1.5	
Right – inner	10.0/1.5	31.0/30.5
Right – outer	10.0/1.5	
Rear		
Left – inner	10.0/1.5	25.9/24.5
Left – outer	10.0/1.5	
Right – inner	10.0/1.5	25.9/24.5
Right – outer	10.0/1.5	

Note: Brake specifications were referenced from my.alldata.com.

The left-front brake rotor was fractured and separated (Figure 24). The exposed fractured surfaces had a rough crystalline appearance.

Figure 24. Fractured left-front brake rotor.

MECHANICAL INSPECTION

2020 Ford Police Interceptor Utility

Tires and Wheels

Air pressure was measured in pounds per square inch (psi). Tread depth was measured at the major tread grooves from outboard to inboard positions in thirty-seconds of an inch. The valve stem was utilized as the 12 o'clock position.

Information related to the tires is presented in Table 5.

Table 5
Information related to the Tires

Tire Position	Brand/Series	Size	DOT[a] Number	Tire Pressure	Tread Depth
Left front	Goodyear/Eagle	255/60R18	1M6W4 JJ1R 3423	Deflated	7, 7, 7, 7
Right front	Goodyear/Eagle	255/60R18	1M6W4 JJ1R 2025	Deflated	10, 10, 10, 10
Left rear	Goodyear/Eagle	255/60R18	1M6W4 JJ1R 1025	4	7, 6, 6, 6
Right rear	Goodyear/Eagle	255/60R18	1M6W4 JJ1R 1025	Deflated	7, 7, 7, 7

Note: [a]DOT indicates Department of Transportation. The DOT number is used for safety standard certification and also in the event of a tire recall by the manufacturer.

The outboard sidewall of the left-front tire sustained tears at the 6 o'clock position, and the outboard wheel flange sustained a radial collapse from the 5 to 7 o'clock positions (Figure 25). The inboard wheel flange of the left-front wheel sustained a radial bend at the 11 o'clock position (Figure 26).

Figure 25. Outboard view of left-front tire and wheel assembly.

Figure 26. Inboard view of left-front tire and wheel assembly.

MECHANICAL INSPECTION

2020 Ford Police Interceptor Utility – Tires and Wheels

The right-front tire was debeaded. The right-front outboard wheel flange sustained radial collapses at the 5 o'clock position, and the outboard sidewall sustained a tear at the same position (Figure 27).

Figure 27. Outboard view of right-front tire and wheel assembly.

The left-rear wheel and outboard sidewall sustained scrapes and had a white powdery substance on them (Figure 28).

The left-rear outboard sidewall sustained tears and cuts at the 5 and 6 o'clock positions, and the outboard wheel flange sustained a radial collapse at the 5 o'clock position (Figure 29).

Figure 28. Outboard view of left-rear tire and wheel assembly.

Figure 29. Outboard view of right-rear tire and wheel assembly.

The damage sustained to the tire and wheel assemblies was caused by contact with another vehicle and other roadway objects.

MECHANICAL INSPECTION

2018 Tesla Model 3

Introduction

On September 25, MCS I Clough and Investigators, Edmunds, and Farber conducted a mechanical inspection of the Tesla while the vehicle was stored at Stagecoach Towing. Information related to the inspection is summarized in Table 6.

Table 6
Information Related to the Inspection

Manufacturer	Tesla, Inc.
Model year	2018
Make	Tesla
Model	3
Body type	Sedan
Drive type	Rear-wheel drive
Color	Grey
License [state]	[redacted] [California]
Vehicle Identification Number (VIN)	[redacted]

The pre-inspection condition of the Tesla is depicted in the following images:

Figure 30. Front of the Tesla.

Figure 31. Rear of the Tesla.

Figure 32. Left side of the Tesla.

Figure 33. Right side of the Tesla.

MECHANICAL INSPECTION

2018 Tesla Model 3 - Introduction

The purpose of this inspection was to collect data necessary to document the post-crash mechanical condition of the Tesla and to identify any mechanical factor(s) that may have contributed to, and/or caused this crash. Some inspected systems contained electronic components, which could not be inspected due to the post-crash condition of the Tesla. The mechanical components inspected on this vehicle were part of the following systems:

- Electric drive system
- Steering and Suspension
- Service brakes
- Tires and Wheels

Electric drive system

Information related to the electric drive system is summarized in Table 7.

Table 7
Information Related to the Electric drive system

Element	Data
Type	Electric powered
Motor	Single motor
Throttle control	Electronic

The key fob/card was not present which made testing of the electric drive system unattainable. The accelerator pedal was intact and securely mounted to the occupant side of the bulkhead within the driver footwell. When manual force was applied to the accelerator pedal, it moved throughout its range of motion with no binding or restriction.

MECHANICAL INSPECTION

2018 Tesla Model 3

Steering and Suspension

The adjustable steering column tilt control lever was controlled through the vehicle computer interface. The components enclosed within the steering column were not inspected. The steering shaft was detached within the steering column.

Tie rod assemblies were used to connect the rack and pinion to the left- and right-side steering knuckles. Each tie rod assembly consisted of an inner tie rod, an outer tie rod end, and a locknut. Each tie rod assembly utilized ball socket joints. The inner tie rod joints were located within the rubber bellows boots and were not visible. The left- and right-side inner joints had no discernable movement. When manual force was applied to the steering wheel, there was no correlating movement at the steering knuckles. When manual force was applied to the left and/or right steering knuckles, both steering knuckles rotated throughout their range of motion with no binding or restriction.

The steering axle was equipped with an independent coil-spring suspension. The wheels were independently connected to the frame, utilizing strut assemblies, control arms, steering knuckles, and ball joint assemblies at both sides. Coil over strut assemblies were mounted to the frame and connected to the lower control arms on each side of the steering axle. Strut assemblies at each side dampened the suspension. A sway bar supplemented the suspension. The front suspension was complete and unremarkable.

The rear knuckles were suspended from the vehicle frame by upper control arms, lower control arms, and a trailing arm. Coil springs were mounted between the frame and its corresponding lower control arm. Strut assemblies at each side dampened the suspension. A sway bar supplemented the suspension. The left-rear suspension sustained fractures and detachments to the upper control arm and steering knuckle (Figure 34 and Figure 35). The exposed fractured surfaces had a rough crystalline appearance.

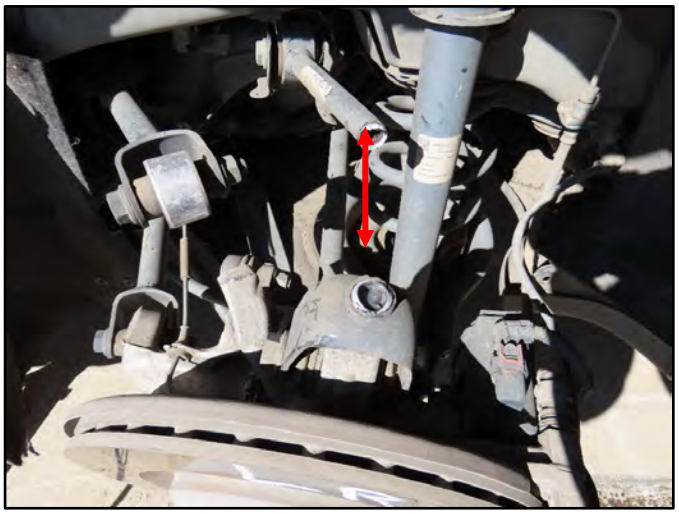

Figure 34. Fractured upper control arm.

Figure 35. Fractured rear knuckle.

MECHANICAL INSPECTION

2018 Tesla Model 3

Service Brakes

Information related to the service brakes and ABS is summarized in Table 8.

Table 8
Information Related to the Service Brakes and ABS

Element	Data
System type	Electric-assisted hydraulic
Master cylinder material	Aluminum
Reservoir chambers/material	Dual/plastic
Brake type [front]	Ventilated disc
Brake type [rear]	Ventilated disc
Brake pad material [front]	Ceramic
Brake pad material [rear]	Ceramic
Caliper type [front]	Four-piston: Fixed
Caliper type [rear]	Single piston: Floating
Circuit type	Dual
Brake fluid level	Within operating range
ABS (front/rear/both)	Both
ABS sensors/channels	4/4
ABS fluid lines	Rigid/flexible

The base brake system was supplemented with a four-channel, four-sensor, integral ABS. The electric parking brake was found in the applied position. Due to the inability to release the parking brake, the parking brake motors were removed to inspect the brake linings.

The brake pedal assembly was mounted to the occupant side of the bulkhead within the driver footwell. The power brake booster was mounted to the forward side of the bulkhead and connected directly to the brake pedal by a pin and retaining clip. The dual circuit, alloy master cylinder was mounted to the forward side of the brake booster. The master cylinder used a plastic reservoir that was internally divided. The translucent reservoir supplied both halves of the system with brake fluid. The reservoir was present, and the fluid level was within operating range. After removing the parking brake motors, manual force was applied to the brake pedal, and manual force applied to each brake rotor, the brake rotors were held stationary. When the brake pedal was released, the brake rotors rotated freely.

MECHANICAL INSPECTION

2018 Tesla Model 3 – Service Brakes

The overall minimum material thicknesses of the friction surfaces of the brake pads and swept areas of the brake rotors were measured in millimeters (Table 9).

Table 9
Measured Minimum Brake Pad Friction Material and Rotor Thicknesses

	Thicknesses (measured/minimum)	
Position	Brake Pad	Brake Rotor
Front		
Left – inner	8.0/2.0	24.9/23.0
Left – outer	8.0/2.0	
Right – inner	8.0/2.0	25.0/23.0
Right – outer	8.0/2.0	
Rear		
Left – inner	7.0/2.0	20.5/18.0
Left – outer	7.0/2.0	
Right – inner	7.0/2.0	20.3/18.0
Right – outer	7.0/2.0	

The front and rear brake components had evidence of use but were otherwise unremarkable.

MECHANICAL INSPECTION

2018 Tesla Model 3

Tires and Wheels

Air pressure was measured in psi. Tread depth was measured at the major tread grooves from outboard to inboard positions in thirty-seconds of an inch. The valve stem was utilized as the 12 o'clock position. Information related to the tires is presented in Table 10.

Table 10
Information related to the Tires

Tire Position	Brand/Series	Size	DOT[a] Number	Tire Pressure	Tread Depth
Left front	Continental/Control Contact	235/40R19	266OFBJ1H 0624	39	10, 10, 10
Right front	Continental/Control Contact	235/40R19	266OFBJ1H 0624	39	10, 10, 10
Left rear	Summit/Ultra Max HP	235/40R19	1YT N8LWTA 1424	Deflated	4, 4, 4, 4
Right rear	Continental/Extreme Control	235/40R19	1HW 0FBCHF 0124	43	5, 5, 5, 4

Note: [a]DOT indicates Department of Transportation. The DOT number is used for safety standard certification and also in the event of a tire recall by the manufacturer.

The left-front tire and wheel assembly had evidence of use but were otherwise unremarkable.

The right-front wheel had pre-existing scrapes throughout the circumference of the outboard flange.

MECHANICAL INSPECTION

2018 Tesla Model 3 – Tires and Wheels

The left-rear tire sustained a perforating tear from the 3 to 5 o'clock positions of the inboard sidewall (Figure 36:A). The left-side inboard wheel flange sustained a radial bend from the 5 to 6 o'clock positions (Figure 36:B). The left-rear tire sustained wear that extended into the reinforcement plies. The wear was limited to the inner tread block of the tread package (Figure 37). This is a pre-existing condition caused by improper wheel alignment. The tread wear condition was not relevant to the crash.

Figure 36. Inboard view of the left-rear tire and wheel damage.

Figure 37. View of the left-rear tread package wear.

The right-rear wheel had pre-existing scrapes throughout the circumference of the outboard flange.

MECHANICAL INSPECTION

Recall Information

A recall is issued when a manufacturer or the National Highway Traffic Safety Administration NHTSA [3]. determines that a vehicle, equipment, car seat, or tire creates an unreasonable safety risk or fails to meet minimum safety standards.

2020 Ford Police Interceptor Utility

On September 8, a search of safety recalls by VIN was conducted through the NHTSA [3] and revealed there were two unrepaired recalls.

NHTSA Recall Number 24V598
Manufacturer Recall Number 24S52
The engine could fail prematurely. In the event of an engine failure, significant quantities of engine oil and/or fuel vapor may be released into the under-hood environment and may migrate to and/or accumulate near and ignition source resulting in potential under-hood fire.

NHTSA Recall Number 25V093
Manufacturer Recall Number 25S09
The seat restraint fasteners may have been improperly secured. This condition may not effectively restrain an occupant during a crash.

The unrepaired recalls did not cause and/or contribute to the crash.

2018 Tesla Model 3

On September 8, a search of safety recalls by VIN was conducted through the NHTSA [3] and revealed there were no unrepaired recalls.

EVENT DATA RECORDER

Overview

The Ford and Tesla were equipped with ACMs with event data recorder (EDR) capability. An ACM is responsible for performing diagnostic checks of the various occupant protection devices installed in the vehicle and collecting and analyzing vehicle acceleration data to predict crash severity. This information is used by the control module to make decisions related to the deployment of supplemental restraints (airbags and/or seat belt pretensioners) when necessary to protect the occupants of the vehicle in a crash. As a secondary function, an ACM may record data related to deployment and/or non-deployment events into non-volatile memory after a deployment decision has been made. Once recorded by the ACM, deployment data may not be overwritten; however, unlocked non-deployment data may be overwritten by subsequent events. Due to different refresh rates within the electronics of the vehicle, pre-crash data may be recorded asynchronously.

The Tesla was also capable of recording telematics data to a secure digital (SD) card installed in the main computer unit (MCU) located forward of the glove compartment. In addition, and according to Tesla, Inc.: *"Tesla vehicles record operational and diagnostic data at regular intervals and may transmit that data over-the-air to our servers. That data enables our Engineering team to assess vehicle health remotely and diagnose, and potentially proactively resolve your concerns."* [4]

On September 25, pursuant to a search warrant, Investigators Edmunds, Farber, and MCS-I Clough responded to Stagecoach Towing to image the data contained within the ACMs installed in the Ford and Tesla. Investigator Edmunds located and seized an SD card installed in the MCU located forward of the glove compartment of the Tesla.

On September 25, MAIT received an email from Tesla, Inc., advising that Tesla, Inc. had no "Over-the-Air" operational, telematics data, or diagnostic data from the Tesla related to this crash.

On October 9, MAIT received an email from Tesla, Inc., advising that Tesla, Inc. was unable to facilitate translation of the data on the SD card.

EVENT DATA RECORDER

Driver Assistance Technology

SAE International is a global professional association which sets the standards for the engineering, design, and manufacturing of cars, trucks, and other auto-related products. SAE paper J3016, "Taxonomy and Definitions for Terms Related to Driving Automation Systems for On-Road Motor Vehicles," discusses the levels of driving automation and the vehicle driving automation systems that perform part to all the dynamic driving tasks.

SAE J3016 provided a summary of the levels of driving automation as shown in Figure 38.

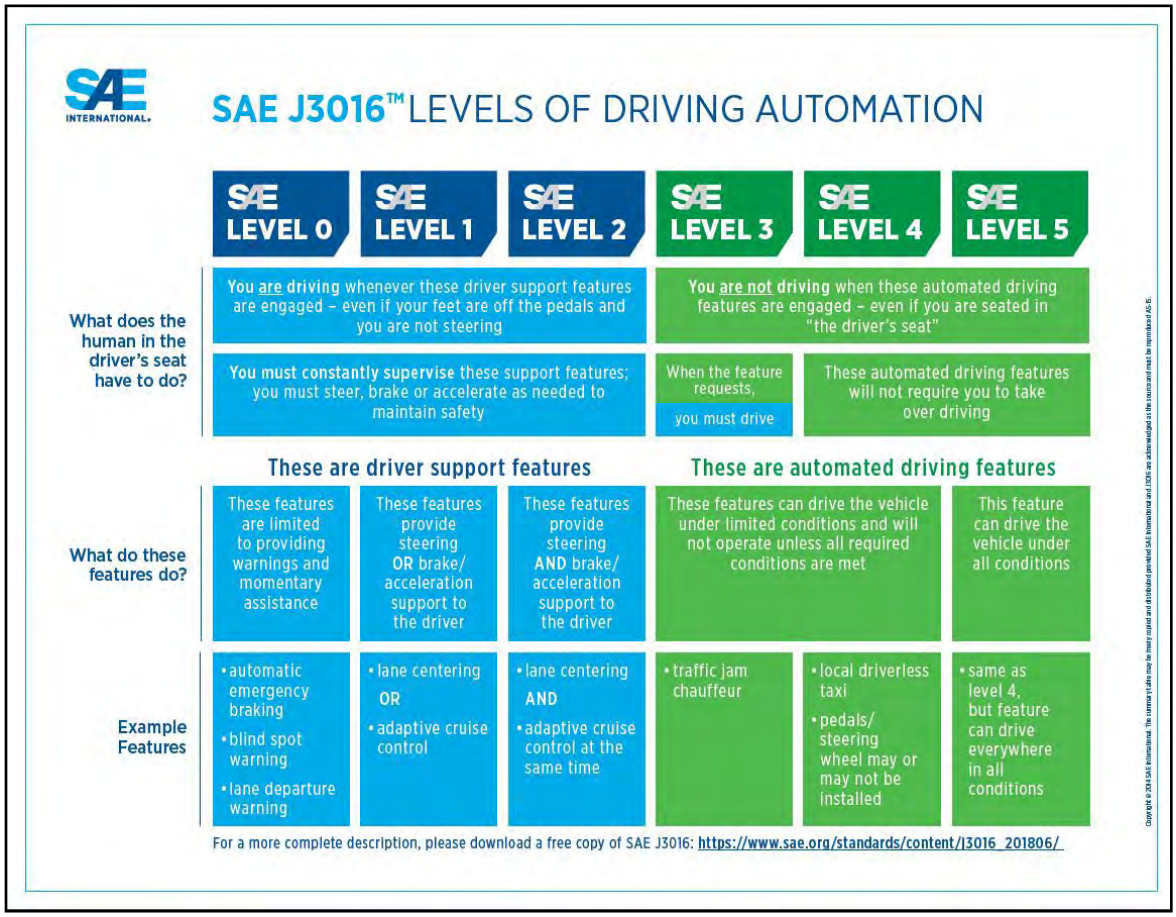

Figure 38. SAE J3016, Levels of Driving Automation.

The levels of driving automation reference the specific role played by the driver, and any driving automation systems, in performance of the dynamic driving tasks. For example, a driver using SAE Level 2 automation is driving, even if their feet are off the accelerator pedal or brake pedal, and they are not steering. Drivers must constantly supervise the driver support features of the vehicle and steer, brake or accelerate as needed to maintain safety.

On September 8, Sergeant Morrin conducted a search by VIN through the NHTSA VIN Decoder. The VIN Decoder listed the safety features equipped on the Ford and Tesla [5].

EVENT DATA RECORDER

Driver Assistance Technology

2020 Ford PIU

The Ford was equipped with several active safety features, which included, but were not limited to, those listed in Table 11 [6]. These systems were intended to be an aid and not relieve the driver of the responsibility to drive with due care and attention.

Table 11
Driver Support Features Equipped on the Ford

Safety Feature	Description
Pre-Collision Assistance System	The system is active at speeds above approximately 3 miles per hour and pedestrian detection is active at speeds up to 50 miles per hour. If the vehicle is rapidly approaching another stationary vehicle, a vehicle traveling in the same direction, or a pedestrian within the driving path, the system is designed to provide three levels of function: Alert, Brake Support, and Active Braking. **Alert:** When active, a flashing visual warning appears and an audible warning tone sound. **Brake Support:** The system is designed to help reduce the impact speed by preparing the brakes for rapid braking. Brake support does not automatically apply the brakes. If you press the brake pedal, the system could apply additional braking up to maximum braking force, even if you lightly press the brake pedal. **Active Braking:** Active braking may activate if the system determines that a collision is imminent. The system may help the driver reduce impact damage or avoid the crash completely. **Note:** Brake Support and Active Braking are active at speeds up to 75 miles per hour.

EVENT DATA RECORDER

Driver Support Features

2018 Tesla Model 3

The Tesla was equipped with several active safety features, which included, but were not limited to, those listed in Table 12 [7]. These systems were intended to be an aid and not relieve the driver of the responsibility to drive with due care and attention.

Table 12
Driver Support Features Equipped on the Tesla

Safety Feature	Description
Traffic-Aware Cruise Control	Like traditional cruise control, Traffic-Aware Cruise Control maintains a set driving speed. However, Traffic-Aware Cruise Control also slows down or accelerates the Model 3 as needed to maintain the following distance from the vehicle ahead. While Traffic-Aware Cruise Control is engaged, you are still responsible for steering Model 3.
Forward Collision Warning	Provides visual and audible warnings in situations when the Model 3 detects that there is a high risk of a frontal collision and may automatically apply brakes if a collision is considered imminent an immediate action is not taken.
Emergency Lane Departure Avoidance	Automatically applies steering to avoid a potential collision in situations where; the vehicle is departing a lane and may collide with a vehicle traveling in the same direction in the adjacent lane, is departing a lane into an oncoming lane, the turn signal is off, and an oncoming vehicle is detected, or is departing the road and the turn signal is off.
Automatic Emergency Braking	The vehicle is designed to determine the distance from detected objects. When a collision is considered unavoidable, Automatic Emergency Braking is designed to apply the brakes to reduce the vehicle's speed and therefore, the severity of the impact.

EVENT DATA RECORDER

2020 Ford Police Interceptor Utility

Pre-imaging Condition

The Ford sustained damage to the front, left and right sides, rear, and undercarriage (Figure 39 and Figure 40). Prior to imaging, the following was noted:

- The tires mounted on the vehicle (255/60R18) were the original size, as indicated on the tire and loading information label affixed to the left B-pillar.
- The driver frontal, driver knee bolster, driver side seat, right-front passenger side seat, and the left and right curtain airbags were deployed.
- The driver seat belt webbing was extended and locked, with the shoulder belt routed behind the driver seat, and latch plate locked in the buckle. The right-front passenger seat belt webbing was retracted and unlocked. The rear seat belt webbings were extended and unlocked, with the latch plated locked in the alternate buckles attached to the in-custody cage.

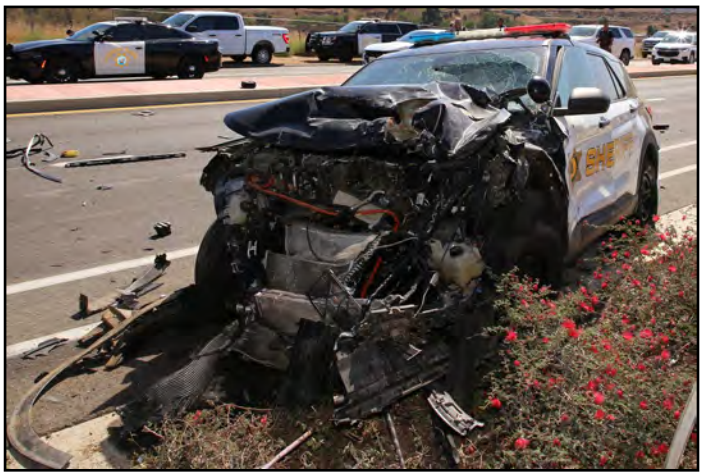

Figure 39. Front and left side of the Ford.

Figure 40. Rear and right side of the Ford.

Imaging

Due to the damage sustained by the electrical system in the crash, Investigator Farber imaged the data stored in the non-volatile memory of the ACM by connecting a Bosch Crash Data Retrieval (CDR) tool directly to the ACM, in accordance with CDR system guidelines. The CDR tool communicated with the ACM and the data was successfully imaged at 0925 hours. The original data remained unaltered within the ACM, which remained installed in the Ford. A copy of the imaged data was recorded to an optical disc and delivered to the CHP San Gorgonio Pass Area office for retention as evidence. Availability of a report in the Bosch CDR software indicated a valid image was copied from the ACM (Annex B). The translated data was analyzed by Investigator Edmunds.

EVENT DATA RECORDER

2020 Ford Police Interceptor Utility

Data Analysis

One event was recovered from the ACM, identified as First Record, and the ACM had experienced 3,461 ignition cycles at the time of imaging. Data related to the system statuses one second prior to and at the time of the First Record are presented in Table 13. Speeds were reported in kilometers per hour and were converted to miles per hour using a conversion of 0.621371.

Table 13

PRE-CRASH DATA -1 SECOND	**FIRST RECORD**
Ignition cycle, Crash	3,460
Frontal Air Bag Warning Lamp (ON/OFF)	OFF
Safety Belt Status, Driver	Belted
Safety Belt Status, Right-Front Passenger	Unbelted
Rear Safety Belt Status, 2nd Row Driver Side	Unbelted
Rear Safety Belt Status, 2nd Row Passenger Side	Unbelted
Brake Telltale	OFF
Antilock Brake System (ABS) Telltale	OFF
Electronic Stability Control (ESC)/Traction Control (TC) Telltale	OFF
ESC/TC Off Telltale	Default Mode
Powertrain Wrench Telltale	OFF
MIL Telltale (Powertrain Malfunction Indicator)	Fresh OFF
Global Real Time (seconds)	176,355,404.8
SYSTEM STATUS AT EVENT	**FIRST RECORD**
Complete File Recorded (Yes/No)	Yes
Multi-Event, Number of Events	1
Time From Event 1 to 2 (seconds)	N/A
Lifetime Operating Timer at Event Time Zero (seconds)	45,501,335
Key-On Timer at Event Time Zero (seconds)	19,725
Vehicle Voltage at Time Zero (Volts)	12.8
Energy Reserve Mode Entered During Event (Yes/ No)	Yes
Time Driver Side/Center Frontal Restraints Sensor Lost Relative to Time Zero (milliseconds)	28
Longitudinal Delta-V Time Zero Offset (milliseconds)	3.5
Lateral Delta-V Time Zero Offset (milliseconds)	3.5
Roll Angle Time Zero Offset (milliseconds)	3.5
Time from Time zero to Frontal Algorithm Wake Up (milliseconds)	Wake up threshold reached at Time Zero
Time from Time zero to Frontal Algorithm Reset (milliseconds)	138
Fuel Cutoff Algorithm Decision Time (milliseconds)	32

The First Record was completely recorded and occurred during ignition cycle 3,460, which was one ignition cycle less than at the time of imaging. The frontal airbag warning lamp was OFF, which was an indication there were no faults with the supplemental restraint system being reported to the driver, prior to the crash. There was a latch plate inserted into the driver seat belt buckle; however, there were no latch plates inserted into the right-front, left-, or right-rear seat belt buckles, which was consistent with the observed conditions of the seat belt webbings prior to imaging.

Additionally, the brake, ABS, ESC/TC, powertrain wrench, and powertrain malfunction indicator lamp (MIL) telltales were OFF, which indicated there were no faults with these systems being reported to the driver prior to the crash.

EVENT DATA RECORDER

2020 Ford Police Interceptor Utility

Diagnostic Trouble Codes

The CDR report indicated there were no diagnostic trouble codes (DTC) recorded at the time of First Record.

Deployment Command Data

During the First Record, the ACM commanded the deployments of the driver frontal, driver knee bolster, driver side seat, right-front passenger side seat, and the left and right curtain airbags. Additionally, the ACM commanded the deployment of the driver seat belt retractor and anchor seat belt pretensioners (Table 14).

Table 14

DEPLOYMENT DATA	FIRST RECORD
Frontal Airbag Deployment, Time to First Stage Deployment, Driver (milliseconds)	18.0
Frontal Airbag Deployment, Time to 2nd Stage, Driver (milliseconds)	28.0
Side Seat Airbag Deployment, Time to Deploy, Driver (milliseconds)	18.0
Side Seat Airbag Deployment, Time to Deploy, Right Front Passenger (milliseconds)	18.0
Side Curtain Airbag Deployment, Time to Deploy, Driver Side (milliseconds)	18.0
Side Curtain Airbag Deployment, Time to Deploy, Passenger Right Side (milliseconds)	18.0
Pretensioner (Retractor) Deployment, Time to Fire, Driver (milliseconds)	10.0
Inflatable Knee Bolster Deployment, Time to Fire, Driver (milliseconds)	18.0
Pretensioner (Anchor) Deployment, Time to Fire, Driver (milliseconds)	10.0
Maximum Delta-V, Longitudinal (miles per hour)	-31.67
Time, Maximum Delta-V Longitudinal (milliseconds)	106.5
ACM High-G (Longitudinal), Discriminating Deployment	Yes
ACM High-G (Longitudinal), Safing	Yes
ACM High-G (Lateral), Discriminating Deployment	Yes
ACM High-G (Lateral), Safing	Yes

Change in Velocity

During the First Record, longitudinal and lateral changes in velocity (Delta-Vs) were reported at a resolution of 10 milliseconds, from time zero to 250 milliseconds after time zero. The primary Delta-V axis was the longitudinal axis (mostly frontal crash). In addition to the Delta-V data, acceleration data was reported at a resolution of 1 millisecond, from 125 milliseconds prior to time zero to 50 milliseconds after time zero.

During the First Record, the single point maximum cumulative longitudinal Delta-V was -31.67 miles per hour, recorded 106.5 milliseconds after time zero. The negative magnitude of the longitudinal Delta-V indicated a crash force from front to rear. A single point maximum cumulative lateral Delta-V was not reported; however, analysis of the lateral crash pulse indicated the maximum cumulative lateral Delta-V was 7.9 miles per hour, recorded 60 milliseconds after time zero. The positive magnitude of the lateral Delta-V indicated a crash force from left to right.

EVENT DATA RECORDER

2020 Ford Police Interceptor Utility

Change in Velocity

The cumulative longitudinal and lateral Delta-V values recorded during the First Record were indicative of a front-to-rear principal direction of force, with a left-to-right component. The graphs of the longitudinal and lateral crash pulses recorded during First Record were characteristic of a typical crash pulse, with no unusual reversals, and were consistent with the damage sustained by the front of the Ford.

Additionally, although the Ford did not overturn, the ACM reported vehicle roll angle during the First Record. Roll angle was reported at a resolution of 0.1 second between 1.0 second prior to time zero and 5.1 seconds after time zero. The roll angle varied between 6.67 degrees (driver side over passenger side) and -0.02 degrees (passenger side over driver side). Most of the roll angle values were positive, which was consistent with the manner the Ford impacted the Tesla.

Pre-crash

Dynamic time-series pre-crash data for the First Record consisted of various elements recorded at a resolution of 0.1, 0.2, 0.5, or 1.0 seconds starting five seconds prior to time zero.[2] The pre-crash data for the First Record was representative of the manner in which the Ford was driven in the five seconds prior to the crash. A portion of the pre-crash data was depicted in Table 15.

Table 15

PRE-CRASH DATA -5.0 SECONDS TO TIME ZEOR (FIRST RECORD)														
Time (seconds)	-5.0	-4.6	-4.0	-3.6	-3.0	-2.6	-2.2	-2.0	-1.8	-1.6	-1.0	-0.8	-0.4	0.0
Speed, Vehicle Indicated (miles per hour)	100.0	99.9	99.4	99.2	98.7	98.4	98.3	98.1	98.1	96.6	86.2	84.1	77.9	71.9
Accelerator Pedal Posiiton (percent)	0	0	0	0	0	7	9	0	0	0	0	0	0	0
Service Brake (ON/OFF)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON
Antilock Braking System Activity (Active/Inactive)	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Active	Active	Active
Stability Control (Active/Inactive)	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Active	Inactive
Steering Wheel Angle (degrees/direction)	0.0 Neutral	0.0 Neutral	1.0 Left	1.0 Left	1.0 Left	0.0 Neutral	0.0 Neutral	0.0 Neutral	0.0 Neutral	7.9 Right	21.0 Right	45.0 Right	40.0 Right	48.0 Right
Traction Control via Brakes (Active/Inactive)	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive
Traction Control via Engine (Active/Inactive)	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive

[2] Time zero, or event beginning, of any event was defined as the first algorithm wake-up during that event; therefore, all the pre-crash, at-event, Delta-V data, or deployment times are relative to time zero.

EVENT DATA RECORDER

2020 Ford Police Interceptor Utility

Pre-crash

Although not inclusive of all pre-crash data reported during the First Record, the following information was noted:

- For the duration of the reporting period, the collision mitigation system was not enabled and had no faults, the gear selector was in DRIVE, the speed control was OFF, the stability control was inactive except for at 0.4 seconds prior to time zero, and the traction control (via the engine or brakes) was inactive. Additionally, the occupant size classification for the right-front passenger seat reported the seat was unoccupied, which was consistent with Deputy Wilburn being the sole occupant of the Ford.
- Five seconds prior to time zero, the indicated vehicle speed was 100.0 miles per hour, no force was applied to the accelerator pedal, the service brake was OFF, which indicated insufficient force applied to the brake pedal to illuminate the brake lights, and ABS was inactive. The steering wheel was held in a neutral position (0 degrees).
- From 4.8 to 2.0 seconds prior to time zero, the indicated vehicle speed decreased from 100.0 to 98.1 miles per hour, the accelerator pedal application ranged from 0 to 9 percent and then decreased to 0 percent, the service brake was OFF, and ABS was inactive. The steering wheel varied from a neutral position (0 degrees) to left 1.0 degree.
- From 1.8 to 1.0 seconds prior to time zero, the indicated vehicle speed decreased from 98.1 to 86.2 miles per hour, no force was applied to the accelerator pedal, the service brake was ON, and ABS was inactive. The steering wheel varied from a neutral position (0 degrees) to right 21.0 degree.
- From 0.8 second prior to time zero to time zero, the indicated vehicle speed decreased from 84.1 to 71.9 miles per hour, no force was applied to the accelerator pedal, the service brake was ON, and ABS was active. The right steering varied from 40.0 to 48.0 degrees.

Due to the activation of the ABS 0.8 second prior to time zero, the indicated vehicle speed reported from 0.8 second prior to time zero to time zero were likely underreported due to wheel slip. The decrease in indicated vehicle speed from over this time period was likely near the upper limit or outside the braking capabilities of the Ford.

EVENT DATA RECORDER

2018 Tesla Model 3

Pre-imaging Condition

The Tesla sustained damage to the front, left and right sides, rear, and undercarriage (Figure 41 and Figure 42). Prior to imaging, the following was noted:

- The tires mounted on the vehicle (235/40R19) were different than the recommended tire size (235/45R18) as indicated on the tire and loading information label affixed to the left B-pillar. The diameter of the tires mounted on the Tesla were 0.4 percent larger than the recommended size [8]. The difference in reported speed from the larger tires would have been negligible.
- The driver frontal, right-front passenger frontal, driver knee bolster, right-front passenger knee bolster, driver side seat, right-front passenger side seat, and left and right curtain airbags were deployed.
- The driver seat belt webbing was extended and locked, with the pretensioner attached to the B-pillar which was displaced. The right-front passenger seat belt webbing was extended and locked. Right-, middle-, and left-rear passenger seat belt webbings were retracted and unlocked.

Figure 41. Rear and left side of the Tesla.

Figure 42. Front and right side of the Tesla.

EVENT DATA RECORDER

2018 Tesla Model 3

Imaging

Due to the damage sustained by the electrical system in the crash, Investigator Farber imaged the data stored in the non-volatile memory of the ACM by connecting a Tesla-In-Vehicle EDR Retrieval Cable directly to the ACM installed in the vehicle, in accordance with Tesla EDR Data Retrieval system guidelines. The Tesla EDR Retrieval software communicated with the ACM and the data was successfully imaged at 17:44:30 Universal Time Coordinated (UTC) (1044 hours Pacific Daylight Time (UTC-7)). The original data remained unaltered within the ACM. The data file was uploaded to the Tesla EDR portal and a portable document format (PDF) EDR Report was generated (Annex C). The translated data was analyzed by Investigator Edmunds.

Investigator Edmunds located an SD card within the MCU of the Tesla. Investigator Edmunds seized the SD card and it was booked into evidence at the CHP San Gorgonio Pass Area office.

Data Analysis

One event was recovered from the ACM, identified as Event 1, and the ACM had experienced 18,335 ignition cycles at the time of imaging. Data related to the system statuses is presented in Table 16. Delta-Vs were reported in kilometers per hour and were converted to miles per hour using a conversion of 0.621371.

Table 16

SYSTEM STATUS DATA	EVENT 1
Ignition cycle, At Event	18,334
Airbag Warning Lamp Status	OFF
Driver Seat Belt Status	Buckled
Right-Front Passenger Seat Belt Status	Buckled
Occupant Classification Right-Front Passenger Seat	Adult
2nd Row Left Seat Occupant	Not Occupied
2nd Row center Seat Occupant	Not Occupied
2nd Row Right Seat Occupant	Not Occupied
Complete File Recorded	Yes
Odometer At Event (miles)	134,701
Maximum Delta-V, Longitudinal (miles per hour)	-20.5
Time To Maximum Delta-V, Longitudinal (milliseconds)	100.0
Maximum Delta-V, Lateral (miles per hour)	33.6
Time To Maximum Delta-V, Lateral (milliseconds)	155.0
Longitudinal Acceleration Sensor Clipping (milliseconds)	17
Lateral Acceleration Sensor Clipping (milliseconds)	17

EVENT DATA RECORDER

2018 Tesla Model 3 – Data Analysis

Event 1 was completely recorded and occurred during ignition cycle 18,334, which was one ignition cycle less than at the time of imaging. The airbag warning lamp was OFF, which was an indication there were no faults with the supplemental restraint system being reported to the driver prior to the crash. The driver and right-front passenger seat belts were buckled, which was consistent with the observed conditions of the seat belt webbings prior to imaging. Clipping was reported for longitudinal and lateral acceleration at 17 milliseconds after time zero, which indicated the maximum range of the accelerometers were exceeded and the actual acceleration (and calculated Delta-V) of the vehicle may be more than the reported value.

Diagnostic Trouble Codes

The EDR report indicated there were no diagnostic trouble codes (DTC) recorded at the time of Event 1.

Deployment Command Data

During Event 1, the ACM commanded the deployments of the driver frontal, right-front passenger frontal, driver knee, right-front passenger knee, driver side seat, right-front passenger side seat, and left and right curtain airbags were deployed. Additionally, the ACM commanded the deployment of the driver and right-front passenger retractor and pretensioners (Table 17). These deployments were consistent with MAIT observations during imaging.

Table 17

DEPLOYMENT DATA	EVENT 1
Driver Front Airbag Stage 1 (milliseconds)	83
Driver Front Airbag Stage 2 (milliseconds)	88
Driver Knee Airbag (milliseconds)	83
Driver Retractor Pretensioner (milliseconds)	1
Driver Lap Pretensioner Deployment (milliseconds)	6
Driver Switchable Load Limiter (milliseconds)	113
Driver Side Seat Airbag (milliseconds)	1
Passenger Front Airbag Stage 1 (milliseconds)	83
Passenger Front Airbag Stage 2 (milliseconds)	88
Passenger Knee Airbag (milliseconds)	83
Passenger Retractor Pretensioner (milliseconds)	1
Passenger Lap Pretensioner (milliseconds)	6
Passenger Switchable Load Limiter (milliseconds)	153
Passenger Side Seat Airbag (milliseconds)	1
Inflatable Curtain Airbag Left (milliseconds)	1
Inflatable Curtain Airbag Right (milliseconds)	1

EVENT DATA RECORDER

2018 Tesla Model 3 – Data Analysis

Change in Velocity

During Event 1, longitudinal and lateral Delta-Vs were reported at a resolution of 10 milliseconds, from time zero to 300 milliseconds after time zero. The primary Delta-V axis was the lateral axis (a mostly left to right crash). In addition to the Delta-V data, acceleration data was reported at a resolution of 0.5 millisecond, from 5.0 milliseconds prior to time zero to 55.0 milliseconds after time zero.

During Event 1, the single point maximum cumulative lateral Delta-V was 33.6 miles per hour, 155.0 milliseconds after time zero. The positive magnitude of the lateral Delta-V indicated a crash force from left to right. The single point maximum cumulative longitudinal Delta-V was –20.5 miles per hour, recorded 100.0 milliseconds after time zero. The negative magnitude of the longitudinal Delta-V indicated a crash force from front to rear.

The cumulative longitudinal and lateral Delta-V values recorded during Event 1 were indicative of a left-to-right principal direction of force, with a front-to-rear component. The graphs of the longitudinal and lateral crash pulses recorded during Event 1 were characteristic of a typical crash pulse, with no unusual reversals, and were consistent with the damage sustained by the left side of the Tesla.

Additionally, although the Tesla did not overturn, the ACM reported vehicle roll angle during Event 1. Roll angle was reported at a resolution of 100 milliseconds between 1000 milliseconds prior to time zero and 5000 milliseconds after time zero. The roll angle was 0 degrees except at 300 and 400 milliseconds after time zero where it was recorded as 10 degrees counterclockwise (passenger side over driver side).

EVENT DATA RECORDER

2018 Tesla Model 3 – Data Analysis

Pre-crash

Dynamic time-series pre-crash data for Event 1 consisted of various elements recorded at a resolution of 0.2 and 0.5 second starting five seconds prior to time zero.[3] The pre-crash data for Event 1 was representative of the manner in which the Tesla was driven in the five seconds prior to the crash. A portion of the pre-crash data was depicted in Table 18.

Table 18

PRE-CRASH DATA -5.0 SECONDS TO TIME ZERO (EVENT 1)												
Time (seconds)	-5.0	-4.6	-4.0	-3.6	-3.0	-2.6	-2.0	-1.6	-1.0	-0.8	-0.6	0.0
Vehicle Speed (miles per hour)	0.0	2.0	4.0	6.0	8.0	9.0	10.0	11.0	12.0	13.0	11.0	0.0
Accelerator Pedal (percent)	17.6	23.2	24.8	26.0	26.4	27.2	28.8	30.8	32.0	0.0	0.0	0.0
Service Brake (ON/OFF)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON
ABS Activity (Active/Inactive)	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Active
Steering Wheel Angle (degrees) (Direction)	1 Left	1 Left	0 Neutral	0 Neutral	4 Left	21 Left	68 Left	97 Left	106 Left	68 Left	40 Left	0 Neutral
Stability Control (Active/Inactive)	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive	Inactive

Although not inclusive of all pre-crash data reported during the Event 1, the following information was noted:

- For the duration of the reporting period, the stability control was inactive.
- Five seconds prior to time zero, the indicated vehicle speed was 0.0 miles per hour, the accelerator pedal was applied 17.6 percent, the service brake was OFF, which indicated insufficient force applied to the brake pedal to illuminate the brake lights, and ABS was inactive. The steering was turned left 1 degree.
- From 4.6 to 1.0 seconds prior to time zero, the indicated vehicle speed increased from 2.0 to 12.0 miles per hour, the accelerator pedal application increased from 23.2 to32.0 percent, the service brake was OFF, and ABS was inactive. The steering varied from a neutral position (0 degrees) to left 106 degrees.
- From 0.8 to 0.6 seconds prior to time zero, the indicated vehicle speed decreased from 13.0 to 11.0 miles per hour, no force was applied to the accelerator pedal, the service brake was OFF, and ABS was inactive. The left steering input decreased from 68 to 40 degrees.
- At time zero, the indicated vehicle speed was 0.0 miles per hour, no force was applied to the accelerator pedal, the service brake was ON, and ABS was active. The steering was 0 degrees neutral.

[3] Time zero, is the point where the restraint control algorithm is activated in any sensing direction.

VIDEO DESCRIPTION AND ANALYSIS

On September 19, Investigator McBreaty collected Deputy Wilburn's Body Worn Camera (BWC) from the CHP San Gorgonio Pass area. The BWC was submitted to the Federal Bureau of Investigation's Regional Computer Forensics Laboratory (RCFL) in San Diego. On September 29, Riverside County Sheriff's Captain Alan Northrup authorized the CHP and the RCFL to search the device for video related to this crash. The RCFL determined the device was not capable of storing video in non-volatile memory for later extraction.

The Riverside County Sheriff Department provided MAIT with the AXON device audit trail (Table 19) for the BWC, which indicted the BWC started charging on September 6, at 0841 hours and the BWC was disconnected from charging at 1003 hours (the time of the crash). No other records were reported between 0841 and the time of the crash. No videos were reported at or around the time of the crash.

Table 19

Item	Date/Time	Event	Additional Information
523	09/06/2025 08:41:58.209 AM -0700	Device connected to charger	Battery 60% Video Count 0 GB Remaining 47.056
524	09/06/2025 10:03:15.215 AM -0700	Device disconnected from charger	Battery 100% Video Count 0 GB Remaining 47.052

PHYSICAL EVIDENCE LOG

The physical evidence listed in Table 20 was limited to evidence collected by MAIT investigators during this investigation and may not represent all the evidence that had been retained at the CHP San Gorgonio Pass Area office.

Requests regarding the items of evidence listed below shall be made directly to:

California Highway Patrol – San Gorgonio Pass Area
195 Highland Springs Avenue
Beaumont, California 92223
(951) 846-5300

Table 20
Physical Evidence Collected by MAIT

Date	Description [Location]
09/06/2025	An optical disc containing 783 photographs taken by Investigator Farber of the physical evidence and roadway features between 1337 and 1842 hours [crash scene]
09/06/2025	An optical disc containing 764 aerial photographs taken by Sergeant Morrin of the physical evidence and roadway features during sUAS mapping between 1737 and 1825 hours [crash scene]
09/06/2025	Three optical discs containing three-dimensional scan data collected by Sergeant Morrin of the scene 1551 to 1721 [crash scene]
09/06/2025	An optical disc containing 2 videos taken by Investigator Farber of the signal phasing between 1651 and 1702 hours [crash scene]
09/08/2025	An optical disc containing 160 photographs taken by Investigator Edmunds of the autopsy of Driver Hinkley between 0916 and 1131 hours [San Bernardino County Coroner Office, San Bernardino]
09/17/2025	An optical disc containing audio recording taken by Investigator Edmunds of the interview of Deputy Wilburn between 1438 and 1525 hours [CHP San Gorgonio Pass Area office]
09/25/2025	An optical disc containing 190 photographs taken by Investigator Edmunds of the Ford and Tesla between 0837 and 1045 hours [Stagecoach Towing, Banning]
09/25/2025	An optical disc containing 352 photographs taken by MCS-I Clough of the Ford and Tesla between 0859 and 1357 hours [Stagecoach Towing]
09/25/2025	An optical disc containing data imaged by Investigator Farber from the ACM installed in the Ford at 0925 hours [Stagecoach Towing]
09/25/2025	An optical disc containing data imaged by Investigator Farber from the ACM installed in the Tesla at 1044 hours [Stagecoach Towing]
09/25/2025	A SD card removed by Investigator Edmunds from the MCU of the Tesla at 1045 hours [Stagecoach Towing]

DIGITAL MEDIA LOG

Overview

During this investigation, MAIT investigators took a total of 2,249 photographs (Table 21), 2 videos (Table 22), and 1 audio recording (Table 23). All files were transferred to optical discs and delivered to the CHP San Gorgonio Pass Area office for retention as evidence.

Requests regarding the files listed below shall be made directly to:

California Highway Patrol – San Gorgonio Pass Area
195 Highland Springs Avenue
Beaumont, California 92223
(951) 846-5300

Photographs

Table 21
Photographs Taken During this Investigation

Date	Photographs	Description [Location]
09/06/2025	IMG_6584 to IMG_7366	783 photographs taken by Investigator Farber of the physical evidence and roadway features [crash scene]
09/06/2025	MAX_0001 to MAX_0197 and MAX_0243 to MAX_0427	764 aerial photographs taken by Sergeant Morrin of the physical evidence and roadway features [crash scene]
09/08/2025	JLE_0851 to JLE_1010	160 photographs taken by Investigator Edmunds of the autopsy of Driver Hinkley [San Bernardino County Coroner, San Bernardino]
09/25/2025	IMG_7791 to IMG_8142	352 photographs taken by MCS-I Clough of the Ford and Tesla [Stagecoach Towing, Banning]
09/25/2025	JLE_1805 to JLE_1994	190 photographs taken by Investigator Edmunds of the Ford and Tesla [Stagecoach Towing]

DIGITAL MEDIA LOG

Videos

Table 22
Videos Taken During this Investigation

Date	Videos	Description [Location]
09/06/2025	IMG_0793 and IMG_0794	2 videos taken by Investigator Farber of the signal phasing [crash scene]

Audio Recordings

Table 23
Audio Recordings Taken During this Investigation

Date	Audio Recordings	Description [Location]
09/17/2025	250917_1438	1 audio recording taken by Investigator Edmunds of the interview of Deputy Wilburn [CHP San Gorgonio Pass Area office]

TIME-POSITION ANALYSIS

Symbols and Units

d - Distance [feet]
fps - Feet per second
mph - Miles per hour
a Acceleration rate [feet per second per second (fps^2)]
t - Time [seconds]
v - Velocity [fps or mph]
Δ - Change in

Equations and Formulas

1. The following equation was used to calculate the change in time when the initial time (t_i) and final time (t_f) were known:

$$\Delta t = t_f - t_i$$

2. The following equation was used to convert velocity to feet per second:

$$fps = mph\left(\frac{5{,}280}{3{,}600}\right)$$

3. The following equation was used to calculate the distance in the direction of travel given the change in time and the reported vehicle velocities for the segment:

$$d = \sum_{i=0}^{n} d_{i+1} + \frac{1}{2}(v_i + v_f)\Delta t$$

4. The following equation was used to calculate distance based on constant velocity over a segment time:

$$d = tv$$

5. The following equation was used to calculate average acceleration based on a change in velocity over a change in time:

$$\bar{a} = \frac{(v_f - v_i)}{(t_f - t_i)}$$

6. The following equation was used to calculate time based on an initial velocity, acceleration, and distance:

$$t = \frac{-v_i + \sqrt{v_i^2 + 2ad}}{a}$$

TIME-POSITION ANALYSIS

Introduction

Data imaged from the ACM installed in the Ford showed that Deputy Wilburn was driving 100 miles per hour five seconds prior to the crash. Data imaged from the ACM installed in the Tesla showed that Driver Hinkley was stopped at the intersection five seconds prior to the crash, he accelerated into the intersection, and was stopped in the intersection at the time of the crash.

The purpose of the following time-position analysis was to determine the location of the Ford when Driver Hinkley began to accelerate the Tesla into the intersection (Cherry Valley Boulevard, Roberts Street), and to determine the locations of the vehicles in the time leading up to the crash.

The data input and the assumptions for the analysis were based on the pre-crash data recorded by the ACMs installed in the vehicles and physical evidence documented on scene.

Values calculated during this analysis were not rounded during intermediate steps.

Calculations

The ACMs installed in the Ford and Tesla recorded numerous values related to the operation of the vehicles, including vehicle speed, accelerator pedal position, steering angle, and brake switch condition during the 5.0 seconds preceding the impact between the Ford and Tesla. Based on the data, the locations of the Ford and Tesla relative to their positions at-impact could be calculated for various times. Utilizing data reported by the ACMs installed in the Ford and Tesla, Table 24 was populated.

The distance traveled by the Ford and Tesla during the 5.0 seconds prior to the crash, beginning from the location of impact, was calculated as follows, with the results in Table 24:

$$v_{fps} = v_{mph}\left(\frac{5{,}280}{3{,}600}\right)$$

$$d = \sum_{i=0}^{n} d_{i+1} + \frac{1}{2}(v_i + v_f)\Delta t$$

TIME-POSITION ANALYSIS

Calculations

Table 24 – *Results of Calculations for the Ford and Tesla*

Ford			
Time [seconds]	**Velocity [mph]**	**Velocity [fps]**	**Distance from Impct [feet]**
0.0	71.9	105.5	0.0
-0.2	76.1	111.6	21.7
-0.4	77.9	114.3	44.3
-0.6	79.2	116.2	67.3
-0.8	84.1	123.3	91.3
-1.0	86.2	126.4	116.3
-1.2	90.8	133.2	142.2
-1.4	92.5	135.7	169.1
-1.6	96.6	141.7	196.8
-1.8	98.2	144.0	225.4
-2.0	98.2	144.0	254.2
-2.2	98.3	144.2	283.0
-2.4	98.4	144.3	311.9
-2.6	98.4	144.3	340.8
-2.8	98.7	144.8	369.7
-3.0	98.7	144.8	398.6
-3.2	98.9	145.1	427.6
-3.4	99.1	145.3	456.6
-3.6	99.2	145.5	485.7
-3.8	99.4	145.8	514.8
-4.0	99.4	145.8	544.0
-4.2	99.5	145.9	573.2
-4.4	99.7	146.2	602.4
-4.6	99.9	146.5	631.7
-4.8	100.0	146.7	661.0
-5.0	100.0	146.7	690.3

Tesla			
Time [seconds]	**Velocity [mph]**	**Velocity [fps]**	**Distance from Impct [feet]**
0.0	0.0	0.0	0.0
-0.2	4.0	5.9	0.6
-0.4	7.0	10.3	2.2
-0.6	11.0	16.1	4.8
-0.8	13.0	19.1	8.4
-1.0	12.0	17.6	12.0
-1.2	12.0	17.6	15.5
-1.4	11.0	16.1	18.9
-1.6	11.0	16.1	22.1
-1.8	10.0	14.7	25.2
-2.0	10.0	14.7	28.2
-2.2	9.0	13.2	30.9
-2.4	9.0	13.2	33.6
-2.6	9.0	13.2	36.2
-2.8	8.0	11.7	38.7
-3.0	8.0	11.7	41.1
-3.2	7.0	10.3	43.3
-3.4	6.0	8.8	45.2
-3.6	6.0	8.8	46.9
-3.8	5.0	7.3	48.5
-4.0	4.0	5.9	49.9
-4.2	4.0	5.9	51.0
-4.4	3.0	4.4	52.1
-4.6	2.0	2.9	52.8
-4.8	1.0	1.5	53.2
-5.0	0.0	0.0	53.4

Of interest in this investigation was the location of the Ford when Driver Hinkley began to make the left turn driving the Tesla from Roberts Street to Cherry Valley Boulevard. At an indeterminate time before 5.0 seconds prior to time zero, Driver Hinkley made the decision to make the left turn onto Cherry Valley Boulevard eastbound from Roberts Street. This was evidenced by the increase in speed from 0.0 mph 5.0 seconds prior to time zero and the change in accelerator pedal position from 17.6 to 32.0 percent of full between 5.0 and 1.0 seconds prior to time zero. Given the arced path traveled by the Tesla while Driver Hinkley made a left turn, the impact location was 53.4 feet southeast of the assumed starting position of the Tesla; therefore, at about the time Driver Hinkley began the turn left from Roberts Street to Cherry Valley Boulevard, the Ford was 690.3 feet east of the impact location. Refer to the Time-Position Diagram for a graphical representation of the locations based upon the values in Table 24.

CHERRY VALLEY BOULEVARD
AT
ROBERTS STREET

STATE OF CALIFORNIA
DEPARTMENT OF CALIFORNIA HIGHWAY PATROL
MULTIDISCIPLINARY ACCIDENT INVESTIGATION TEAM (MAIT) REPORT
CHP 556 (Rev. 9-25) OPI 060 ***(MAIT use only)***

DATE OF INCIDENT (MONTH-DAY-YEAR)	TIME (2400)	NCIC	OFFICER I.D.	AGENCY/AREA CASE NUMBER	MAIT CASE NUMBER	PAGE
09/06/2025	1003	9655	019871	9655-2025-01454	BS-070-25	60

TIME-POSITION DIAGRAM
PREPARED BY: J. EDMUNDS, ID 19379

SCALE
0 20 40

TIME: **-5.0 SECOND (IMPACT)**
SPEED: **0.0 MPH**
DISTANCE TO FIRST AOI: **53.4 FEET**
BRAKE SWITCH: **OFF**
ABS: **OFF**
ACCELERATOR PEDAL: **17.6 PERCENT**
STEERING INPUT: **1 DEGREE LEFT**

TIME: **-4.0 SECOND (IMPACT)**
SPEED: **4.0 MPH**
DISTANCE TO FIRST AOI: **49.9 FEET**
BRAKE SWITCH: **OFF**
ABS: **OFF**
ACCELERATOR PEDAL: **24.8 PERCENT**
STEERING INPUT: **0 DEGREES**

TIME: **-3.0 SECOND (IMPACT)**
SPEED: **8.0 MPH**
DISTANCE TO FIRST AOI: **41.1 FEET**
BRAKE SWITCH: **OFF**
ABS: **OFF**
ACCELERATOR PEDAL: **26.4 PERCENT**
STEERING INPUT: **4 DEGREES LEFT**

TIME: **-2.0 SECOND (IMPACT)**
SPEED: **10.0 MPH**
DISTANCE TO FIRST AOI: **28.2 FEET**
BRAKE SWITCH: **OFF**
ABS: **OFF**
ACCELERATOR PEDAL: **28.8 PERCENT**
STEERING INPUT: **68 DEGREES LEFT**

TIME: **-1.0 SECOND (IMPACT)**
SPEED: **12.0 MPH**
DISTANCE TO FIRST AOI: **12.0 FEET**
BRAKE SWITCH: **OFF**
ABS: **OFF**
ACCELERATOR PEDAL: **32.0 PERCENT**
STEERING INPUT: **106 DEGREES LEFT**

TIME: **0.0 SECOND (IMPACT)**
SPEED: **0.0 MPH**
DISTANCE TO FIRST AOI: **0.0 FEET**
BRAKE SWITCH: **ON**
ABS: **ON**
ACCELERATOR PEDAL: **0.0 PERCENT**
STEERING INPUT: **0 DEGREES**

TIME: **-0.0 SECOND (IMPACT)**
SPEED: **71.9 MPH**
DISTANCE TO FIRST AOI: **0.0 FEET**
BRAKE SWITCH: **ON**
ABS: **ON**
ACCELERATOR PEDAL: **0 PERCENT**
STEERING INPUT: **45.0 DEGREES RIGHT**

TIME: **-1.0 SECOND (IMPACT)**
SPEED: **86.2 MPH**
DISTANCE TO FIRST AOI: **116.3 FEET**
BRAKE SWITCH: **ON**
ABS: **OFF**
ACCELERATOR PEDAL: **0 PERCENT**
STEERING INPUT: **21.0 DEGREES RIGHT**

TIME: **-2.0 SECOND (IMPACT)**
SPEED: **98.1 MPH**
DISTANCE TO FIRST AOI: **254.2 FEET**
BRAKE SWITCH: **OFF**
ABS: **OFF**
ACCELERATOR PEDAL: **0 PERCENT**
STEERING INPUT: **0.0 DEGREES**

TIME: **-3.0 SECOND (IMPACT)**
SPEED: **98.7 MPH**
DISTANCE TO FIRST AOI: **398.6 FEET**
BRAKE SWITCH: **OFF**
ABS: **OFF**
ACCELERATOR PEDAL: **0 PERCENT**
STEERING INPUT: **1.0 DEGREE LEFT**

TIME: **-4.0 SECOND (IMPACT)**
SPEED: **99.4 MPH**
DISTANCE TO FIRST AOI: **544.0 FEET**
BRAKE SWITCH: **OFF**
ABS: **OFF**
ACCELERATOR PEDAL: **0 PERCENT**
STEERING INPUT: **1.0 DEGREE LEFT**

TIME: **-5.0 SECOND (IMPACT)**
SPEED: **100.0 MPH**
DISTANCE TO FIRST AOI: **690.3 FEET**
BRAKE SWITCH: **OFF**
ABS: **OFF**
ACCELERATOR PEDAL: **0 PERCENT**
STEERING INPUT: **0.0 DEGREE**

CRASH SEQUENCE

Pre-Crash

On September 6, Deputy Wilburn was driving the Ford west on Cherry Valley Boulevard, east of Roberts Street, in the #1 lane, with the siren and forward-facing red and blue emergency lights of the Ford activated. At the time Deputy Wilburn was responding to an active shooting incident call. Driver Hinkley was driving the Tesla south on Roberts Street, north of Cherry Valley Boulevard, in the left turn lane. The signal lights controlling the intersection of Cherry Valley Boulevard and Roberts Street phased green for Driver Hinkley to make a left turn and red for Deputy Wilburn traveling on Cherry Valley Boulevard.

Five seconds prior to the crash, Deputy Wilburn was driving the Ford in the #1 westbound lane of Cherry Valley Boulevard at 100 miles per hour, with no force applied to the accelerator or brake pedals. Driver Hinkley was driving the Tesla, stopped, in the southbound left turn lane of Roberts Street, with no force applied to the brake pedal. The Ford was 690.3 feet from the first AOI and the Tesla was 53.4 feet from the first AOI.

From 4.8 to 2.2 seconds prior to the crash, Deputy Wilburn depressed the accelerator pedal to 9 percent of full however, the Ford slowed from 100.0 to 98.3 miles per hour. Driver Hinkley depressed the accelerator pedal to 28.8 percent of full and the Tesla speed increased from 1 to 9 miles per hour, while left steering increased to 54 degrees.

From 1.8 to 1.0 second prior to the crash, Deputy Wilburn, having likely recognized the Tesla as a hazard, took evasive action by turning the steering wheel from a neutral position (0 degrees) to right 21 degrees, there was no force applied to the accelerator pedal, the brakes were applied, and the speed of the Ford decreased from 98.1 to 86.2 miles per hour. Driver Hinkley depressed the accelerator pedal from 28.8 to 32.0 percent of full and the Tesla speed increased from 10 to 12 miles per hour, while left steering increased to 106 degrees and then decreased to 106 degrees.

From 0.8 to 0.2 second prior to the crash, Deputy Wilburn continued to take evasive action by turning the steering wheel right from 45 to 58 degrees, there was no force applied to the accelerator pedal, the brakes were applied, the antilock brake system of the Ford was engaged, and the speed of the Ford decreased from 84.1 to 76.2 miles per hour. Deputy Wilburn failed to stop for the red phased signal light and entered the intersection. Driver Hinkley had no force applied to the accelerator or brake pedals and the Tesla speed decreased from 13 to 4 miles per hour, while left steering decreased from 68 degrees to neutral and right steering increased to 13 degrees.

CRASH SEQUENCE

At-Crash

At the time of the crash, the Ford, with the forward-facing red and blue emergency lights activated, was traveling 71.9 miles per hour and Deputy Wilburn had reduced right steering to 48 degrees, no force was applied to the accelerator pedal, force was applied to the brake pedal, and the antilock brake system of the Ford was engaged. At the time of the crash, the Tesla was stopped, and Driver Hinkley had no force applied to the accelerator pedal, force applied to the brake pedal, and the steering wheel was turned 0 degrees (neutral).

As a result of the crash, the ACM installed in the Ford experienced a maximum cumulative longitudinal Delta-V of -37.67 miles per hour (front to rear) and maximum cumulative lateral Delta-V of 7.5 miles per hour (left to right), while ACM installed in the Tesla experienced a maximum cumulative lateral Delta-V of 33.6 (left to right) and maximum cumulative longitudinal Delta-V of –20.5 (front to rear).

Post-Crash

After the crash forces subsided, both vehicles separated. The orientation of the vehicles at impact, coupled with the applied principal direction of force, caused the Ford to rotate in a counterclockwise manner and the Tesla to rotate in a counterclockwise manner.

While rotating, the Ford was translating in a northwesterly direction where the right wheels and tires of the Ford impacted the raised concrete curb at the northwest corner of the intersection. The Ford continued translating in a northwesterly direction, began rotating in a clockwise direction and the right rear of the Ford impacted the signal and lighting standard installed on the northwest corner of the intersection. The Ford continued translating in a westerly direction and the right front of the Ford impacted the fire hydrant installed on the northwest corner of the intersection. The Ford continued translating in a westerly direction and the front of the Ford impacted the “THRU TRAFFIC MERGE LEFT” sign installed on the north side of Cherry Valley Boulevard west of Roberts Street. The Ford came to rest on its wheels, facing in a northeasterly direction, in the bike lane of westbound Cherry Valley Boulevard, west of Roberts Street.

While rotating, the Tesla was translating in a westerly direction and came to rest on its wheels, facing in a southwesterly direction, in the #2 westbound lane of Cherry Valley Boulevard, west of Roberts Street.

The crash resulted in fatal injuries to Driver Hinkley, serious injuries to Passenger Fox, and minor injuries to Deputy Wilburn.

AREAS OF IMPACT

Overview

There were six areas of impact (AOI) identified during the crash sequence. The following AOI were established based on a) an analysis of physical evidence identified and documented at the crash scene, b) analysis of the motion of the Ford and Tesla during the crash sequence, and c) observations of the damage sustained by the Ford and Tesla. Measurements were taken perpendicular to the north roadway edge prolongation of Cherry Valley Boulevard and the west roadway edge prolongation of Roberts Street.

Area of Impact #1

The front of the Ford impacted the left side of the Tesla 17 feet south of the north roadway edge prolongation of Cherry Valley Boulevard and 39 feet east of the west roadway edge prolongation of Roberts Street.

Area of Impact #2

The right front wheel of the Ford impacted the raised concrete curb 2 feet north of the north roadway edge prolongation of Cherry Valley Boulevard and 25 feet west of the west roadway edge prolongation of Roberts Street.

Area of Impact #3

The right rear wheel of the Ford impacted the raised concrete curb 5 feet north of the north roadway edge prolongation of Cherry Valley Boulevard and 18 feet west of the west roadway edge prolongation of Roberts Street.

Area of Impact #4

The right rear of the Ford impacted the lighting and signal standard 5 feet north of the north roadway edge prolongation of Cherry Valley Boulevard and 27 feet west of the west roadway edge prolongation of Roberts Street.

Area of Impact #5

The right front of the Ford impacted the fire hydrant 2 feet north of the north roadway edge prolongation of Cherry Valley Boulevard and 39 feet west of the west roadway edge prolongation of Roberts Street.

Area of Impact #6

The right front of the Ford impacted the “THRU TRAFFIC MERGE LEFT” sign 3 feet north of the north roadway edge prolongation of Cherry Valley Boulevard and 48 feet west of the west roadway edge prolongation of Roberts Street.

CONCLUSIONS

Overview

The following conclusions were based on the totality of this MAIT investigation. The investigation included such elements as a) review of preliminary crash information provided by CHP San Gorgonia Pass Area, b) analysis of physical evidence identified and documented by MAIT Investigators at the crash scene, c) mechanical inspection of the Ford and Tesla, d) analysis of vehicle dynamics, e) statements, f) analysis of EDR data imaged from the ACMs installed in the Ford and Tesla, and g) time-position analysis.

Environmental Factors

Due to several electrical control cabinets and irrigation cages located on the northeast corner of the intersection, the view of traffic approaching on Cherry Valley Boulevard westbound was obscured from drivers on Roberts Street and the view of traffic approaching on Roberts Street southbound was obscured from drivers on Cherry Valley Boulevard westbound. The lack of visibility of the two roadways may have contributed to the cause of the crash.

Human Factors

Within 5 seconds prior to the impact with the Tesla, Deputy Wilburn was driving the Ford west on Cherry Valley Boulevard, east of Roberts Street, at a peak speed of 100 miles per hour, 690.3 feet from the first AOI. As Deputy Wilburn was approaching the intersection, he slowed the Ford to 72 miles per hour; however, Deputy Wilburn failed to stop for the solid red traffic signal at the intersection of Cherry Valley Boulevard and Roberts Street.

Based upon Deputy Wilburn's statement, witness statements, and the condition of the emergency light switches in the Ford, Deputy Wilburn did have the emergency lights of the Ford activated as he was approaching the intersection of Cherry Valley Boulevard and Roberts Street. As a result, Deputy Wilburn was exempt from the provisions of the California Vehicle Code; however, he was still required to drive with due regard for the safety of all persons using the highway.

Within the same 5 seconds, Driver Hinkley was driving the Tesla south on Roberts Street, north of Cherry Valley Boulevard, stopped, 53.4 feet from the first AOI. The traffic signal facing Driver Hinkley phased to green and Driver Hinkley began to accelerate the Tesla to a speed of 13 miles per hour and conduct a left turn to Cherry Valley Boulevard eastbound.

Deputy Wilburn was not utilizing a seat belt at the time of the crash. The shoulder belt of the driver seat belt of the Ford was wrapped behind the driver seat and buckle into the seat belt buckle at the crash scene. As a result of the crash, Deputy Wilburn sustained minor injuries.

Driver Hinkley and Passenger Fox were utilizing seat belts at the time of the crash. As a result of the crash, Driver Hinkley sustained fatal injuries and Passenger Fox sustained serious injuries.

CONCLUSIONS

Vehicle Factors

2020 Ford Police Interceptor Utility

The following conclusion was based on the mechanical inspection of the engine, throttle, steering, suspension, service brakes, and tires and wheels of the Ford.

There were no pre-existing mechanical deficiencies discovered or identified during the mechanical inspection of the Ford that would have affected the normal functional ability on the highway and/or caused or contributed to this crash. The damage sustained by the Ford was caused by contact with the Tesla, the signal and lighting standard, the concrete curb, the fire hydrant, and the “THRU TRAFFIC MERGE LEFT” sign during the crash sequence.

The Ford was equipped with driver assistance technologies including a pre-collision assistance system; however, the system only operated at speed below 75 miles per hour. As the Ford was traveling over 75 miles per hour up to the time of the crash, the system would not have been active.

2018 Tesla Model 3

The following conclusion was based on the mechanical inspection of the electric drive system, steering, suspension, service brakes, and tires and wheels of the Tesla.

There were no pre-existing mechanical deficiencies discovered or identified during the mechanical inspection of the Tesla that would have affected the normal functional ability on the highway and/or caused or contributed to this crash. The damage sustained by the Tesla was caused by contact with the Ford.

The Tesla was equipped with driver assistance technologies; however, it was indeterminant if they were active at the time of the crash.

CONCLUSIONS

Statutes and Violations of the Law

Section 165 California Vehicle Code (C.V.C) – Authorized Emergency Vehicle Defined

An authorized emergency vehicle is:

(b) Any publicly owned vehicle operated by the following persons, agencies, or organizations:

(1) Any federal, state, or local agency, department, or district employing peace officer for use by those officers in the performance of their duties

Section 21055 C.V.C. – Emergency Vehicle Exemption

The driver of an authorized emergency vehicle is exempt from Chapter 2 (commencing with Section 21350), Chapter 3 (commencing with Section 21650), Chapter 4 (commencing with Section 21800), Chapter 5 (commencing with Section 21950), Chapter 6 (commencing with 22100), Chapter 7 (commencing with Section 22348), Chapter 8 (commencing with Section 22450), Chapter 9 (commencing with Section 22500), and Chapter 10 (commencing with Section 22650) of this division, and Article 3 (commencing with Section 38305) and Article 4 (commencing with Section 38312) of Chapter 5 of Division 16.5, under all of the following conditions:

(a) If the vehicle is being driven in response to an emergency call or while engaged in rescue operations or is being used in the immediate pursuit of an actual or suspected violator of the law or is responding to, but not returning from, a fire alarm, except that fire department vehicles are exempt whether directly responding to an emergency call or operated from one place to another as rendered desirable or necessary by reason of an emergency call and operated to the scene of the emergency or operated from one fire station to another or to some other location by reason of the emergency call.

(b) If the driver of the vehicle sounds a siren as may be reasonably necessary and the vehicle displays a lighted red lamp visible from the front as a warning to other drivers and pedestrians. A siren shall not be sounded by an authorized emergency vehicle except when required under this section.

Section 21056 C.V.C. – Emergency Vehicle Exemption Duty

Section 21055 does not relieve the driver of a vehicle from the duty to drive with due regard for the safety of all persons using the highway, nor protect them from the consequences of an arbitrary exercise of the privileges granted in that section.

Section 21453(a) C.V.C. – Red Signal Light

A driver facing a steady circular red signal alone shall stop at a marked limit line, but if none, before entering the crosswalk on the near side of the intersection or, if none, then before entering the intersection, and shall remain stopped until an indication to proceed is shown.

CONCLUSIONS

Statutes and Violations of the Law

Section 21806 – Yield to Emergency Vehicles

Upon the immediate approach of an authorized emergency vehicle which is sounding a siren, and which has at least one lighted lamp exhibiting red light that is visible, under normal atmospheric conditions, from a distance of 1,000 feet to the front of the vehicle, the surrounding traffic shall, except as otherwise directed by a traffic officer, do the following:

(a)(1) Except as required under paragraph (2), the driver of every other vehicle shall yield the right-of-way and shall immediately drive to the right-hand edge or curb of the highway, clear of any intersection, and thereupon shall stop and remain stopped until the authorized emergency vehicle has passed.

(2) A person driving a vehicle in an exclusive or preferential use lane shall exit that lane immediately upon determining that the exit can be accomplished with reasonable safety.

(b) The operator of every street car shall immediately stop the street car, clear of any intersection, and remain stopped until the authorized emergency vehicle has passed.

(c) All pedestrians upon the highway shall proceed to the nearest curb or place of safety and remain there until the authorized emergency vehicle has passed.

Section 25252 C.V.C. – Lighting Equipment of Authorized Emergency Vehicle Defined

Every authorized emergency vehicle shall be equipped with at least one steady burning red warning lamp visible from at least 1,000 feet to the front of the vehicle to be used as provided in this code. In addition, authorized emergency vehicles may display revolving, flashing, or steady red warning lights to the front, sides or rear of the vehicles.

Deputy Wilburn satisfied the elements of California Vehicle Code 21055(a) based on the following:

- Deputy Wilburn was a peace officer employed by the Riverside County Sheriff's Department
- The Ford was an authorized emergency vehicle with forward facing red lights and siren
- Deputy Wilburn was the driver of the Ford at the time of the crash
- Deputy Wilburn and witnesses stated the emergency lights and siren of the Ford were activated

As a result, Deputy Wilburn was exempt from certain sections of the California Vehicle Code, however, Deputy Wilburn was still required by California Vehicle Code section 21056 to "*drive with due regard for the safety of all persons using the highway*".

CONCLUSIONS

Causation Analysis

Based on the facts discovered during this investigation, the following conclusions were made regarding the causation of this crash:

Deputy Wilburn caused this crash by driving the Ford west on Cherry Valley Boulevard, east of Roberts Street and failing to stop the Ford before entering the intersection against a red-phased signal light.

The negligence of Deputy Wilburn was the proximate cause of the death of Driver Hinkley and the injuries to Passenger Fox and himself.

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ANNEX A: GNSS SURVEY COORDINATES

POINT	EASTING	NORTHING	HEIGHT	POINT	EASTING	NORTHING	HEIGHT
1	6,326,716.635	2,296,973.907	2,465.794	41	6,326,646.497	2,296,979.488	2,461.855
2	6,326,706.235	2,296,974.931	2,465.162	42	6,326,640.191	2,296,978.224	2,461.539
3	6,326,696.710	2,296,976.242	2,464.628	43	6,326,631.985	2,296,977.750	2,461.117
4	6,326,686.597	2,296,977.792	2,464.009	44	6,326,624.744	2,296,978.571	2,460.716
5	6,326,679.345	2,296,978.989	2,463.609	45	6,326,611.853	2,296,982.392	2,460.007
6	6,326,672.928	2,296,980.254	2,463.161	46	6,326,602.596	2,296,985.344	2,459.403
7	6,326,671.999	2,296,980.460	2,463.098	47	6,326,593.527	2,296,987.864	2,458.852
8	6,326,672.754	2,296,977.832	2,463.283	48	6,326,582.335	2,296,989.870	2,458.170
9	6,326,670.998	2,296,979.097	2,463.148	49	6,326,655.763	2,296,984.794	2,462.308
10	6,326,669.731	2,296,980.079	2,463.006	50	6,326,648.908	2,296,986.460	2,461.889
11	6,326,669.021	2,296,980.474	2,462.996	51	6,326,642.225	2,296,987.557	2,461.489
12	6,326,671.662	2,296,979.263	2,463.198	52	6,326,636.448	2,296,988.196	2,461.163
13	6,326,671.237	2,296,979.591	2,463.143	53	6,326,627.414	2,296,988.626	2,460.682
14	6,326,671.387	2,296,980.014	2,463.154	54	6,326,614.273	2,296,988.058	2,460.012
15	6,326,670.905	2,296,980.367	2,463.090	55	6,326,602.093	2,296,986.360	2,459.392
16	6,326,671.492	2,296,981.465	2,463.097	56	6,326,594.098	2,296,985.008	2,459.116
17	6,326,671.378	2,296,981.935	2,463.067	57	6,326,589.700	2,296,984.387	2,458.848
18	6,326,670.252	2,296,983.556	2,463.001	58	6,326,580.700	2,296,982.447	2,458.319
19	6,326,669.640	2,296,985.064	2,462.941	59	6,326,575.019	2,296,981.562	2,458.037
20	6,326,668.270	2,296,985.348	2,462.876	60	6,326,569.832	2,296,981.202	2,457.819
21	6,326,667.616	2,296,984.782	2,462.831	61	6,326,566.806	2,296,981.307	2,457.641
22	6,326,668.755	2,296,981.882	2,462.975	62	6,326,565.190	2,296,981.558	2,457.482
23	6,326,670.377	2,296,980.163	2,463.075	63	6,326,655.628	2,296,986.355	2,462.226
24	6,326,671.166	2,296,979.761	2,463.195	64	6,326,647.803	2,296,984.981	2,461.843
25	6,326,669.535	2,296,985.316	2,462.924	65	6,326,643.925	2,296,984.105	2,461.688
26	6,326,668.740	2,296,985.447	2,462.863	66	6,326,634.058	2,296,981.802	2,461.212
27	6,326,667.991	2,296,985.648	2,462.851	67	6,326,624.224	2,296,979.421	2,460.755
28	6,326,669.093	2,296,986.813	2,462.890	68	6,326,615.585	2,296,978.483	2,460.286
29	6,326,668.489	2,296,986.916	2,462.857	69	6,326,606.472	2,296,979.305	2,459.799
30	6,326,667.387	2,296,987.127	2,462.789	70	6,326,598.663	2,296,981.243	2,459.309
31	6,326,665.076	2,296,987.079	2,462.583	71	6,326,591.880	2,296,983.188	2,458.895
32	6,326,662.621	2,296,987.060	2,462.485	72	6,326,581.728	2,296,985.898	2,458.227
33	6,326,660.718	2,296,987.053	2,462.387	73	6,326,574.717	2,296,987.405	2,457.845
34	6,326,665.767	2,296,976.414	2,462.854	74	6,326,572.221	2,296,987.948	2,457.669
35	6,326,664.899	2,296,976.764	2,462.779	75	6,326,655.036	2,296,987.612	2,462.163
36	6,326,660.905	2,296,977.992	2,462.551	76	6,326,653.850	2,296,988.423	2,462.099
37	6,326,654.408	2,296,980.272	2,462.167	77	6,326,651.045	2,296,989.796	2,461.920
38	6,326,659.964	2,296,983.501	2,462.435	78	6,326,649.023	2,296,990.566	2,461.870
39	6,326,657.968	2,296,982.844	2,462.342	79	6,326,651.410	2,296,994.552	2,461.898
40	6,326,654.288	2,296,981.866	2,462.149	80	6,326,647.267	2,296,995.997	2,461.658

(*table continues*)

ANNEX A: GNSS SURVEY COORDINATES

POINT	EASTING	NORTHING	HEIGHT	POINT	EASTING	NORTHING	HEIGHT
81	6,326,641.665	2,296,997.605	2,461.208	121	6,326,614.732	2,297,003.185	2,460.213
82	6,326,638.216	2,296,998.391	2,461.024	122	6,326,614.796	2,297,003.036	2,460.242
83	6,326,635.576	2,296,999.064	2,460.788	123	6,326,611.489	2,296,999.040	2,459.597
84	6,326,634.370	2,296,999.282	2,460.784	124	6,326,610.043	2,296,999.301	2,459.543
85	6,326,647.203	2,296,990.965	2,461.769	125	6,326,607.152	2,296,999.835	2,459.943
86	6,326,646.282	2,296,991.472	2,461.672	126	6,326,602.175	2,297,000.484	2,459.616
87	6,326,644.273	2,296,992.033	2,461.598	127	6,326,597.035	2,297,001.190	2,459.385
88	6,326,640.578	2,296,993.134	2,461.349	128	6,326,605.925	2,297,003.338	2,460.198
89	6,326,636.865	2,296,994.077	2,461.060	129	6,326,605.699	2,297,004.076	2,460.263
90	6,326,634.263	2,296,994.613	2,460.862	130	6,326,605.710	2,297,004.400	2,461.742
91	6,326,644.462	2,296,983.565	2,461.682	131	6,326,605.222	2,297,003.705	2,463.124
92	6,326,635.800	2,296,985.920	2,461.136	132	6,326,604.610	2,297,003.705	2,462.075
93	6,326,627.340	2,296,987.705	2,460.637	133	6,326,604.616	2,297,003.672	2,460.314
94	6,326,617.924	2,296,989.001	2,460.146	134	6,326,604.080	2,296,998.218	2,459.185
95	6,326,641.845	2,296,989.191	2,461.469	135	6,326,604.124	2,296,999.035	2,459.724
96	6,326,640.665	2,296,990.146	2,461.385	136	6,326,601.054	2,296,999.037	2,459.591
97	6,326,639.742	2,296,990.906	2,461.319	137	6,326,597.133	2,296,998.820	2,459.271
98	6,326,637.176	2,296,992.242	2,461.130	138	6,326,588.859	2,296,998.784	2,458.934
99	6,326,632.903	2,296,992.983	2,460.838	139	6,326,585.276	2,296,998.790	2,458.695
100	6,326,622.197	2,296,995.040	2,460.212	140	6,326,582.539	2,296,998.860	2,458.587
101	6,326,613.753	2,296,996.893	2,459.699	141	6,326,585.464	2,296,998.447	2,458.696
102	6,326,608.567	2,296,997.844	2,459.462	142	6,326,588.750	2,296,998.353	2,458.970
103	6,326,604.038	2,296,996.712	2,459.218	143	6,326,597.126	2,296,998.368	2,459.314
104	6,326,611.641	2,296,995.467	2,459.623	144	6,326,601.136	2,296,998.124	2,458.896
105	6,326,618.028	2,296,994.264	2,459.968	145	6,326,604.073	2,296,998.234	2,459.177
106	6,326,621.970	2,296,993.561	2,460.159	146	6,326,593.583	2,297,000.396	2,459.135
107	6,326,628.809	2,296,992.094	2,460.567	147	6,326,523.329	2,297,012.002	2,455.358
108	6,326,636.333	2,296,990.526	2,461.103	148	6,326,524.745	2,297,009.425	2,455.423
109	6,326,639.774	2,296,989.785	2,461.286	149	6,326,524.221	2,297,009.218	2,455.209
110	6,326,635.663	2,296,991.099	2,461.031	150	6,326,582.146	2,296,998.456	2,458.569
111	6,326,633.456	2,296,991.615	2,460.894	151	6,326,578.623	2,296,998.558	2,458.423
112	6,326,631.316	2,296,992.306	2,460.756	152	6,326,577.685	2,296,998.769	2,458.294
113	6,326,629.747	2,296,993.038	2,460.624	153	6,326,575.999	2,296,998.918	2,458.229
114	6,326,617.759	2,297,002.404	2,459.832	154	6,326,586.522	2,297,001.206	2,458.729
115	6,326,615.319	2,297,002.748	2,459.690	155	6,326,578.424	2,297,000.777	2,458.419
116	6,326,614.162	2,297,002.849	2,460.202	156	6,326,572.924	2,297,001.710	2,457.803
117	6,326,611.292	2,297,003.257	2,460.072	157	6,326,562.602	2,297,002.370	2,457.424
118	6,326,607.337	2,297,003.537	2,459.975	158	6,326,559.121	2,297,001.787	2,457.116
119	6,326,615.207	2,297,003.295	2,460.134	159	6,326,556.489	2,296,999.874	2,457.073
120	6,326,615.072	2,297,003.394	2,460.187	160	6,326,584.734	2,297,001.002	2,458.126

(*table continues*)

ANNEX A: GNSS SURVEY COORDINATES

POINT	EASTING	NORTHING	HEIGHT	POINT	EASTING	NORTHING	HEIGHT
161	6,326,560.857	2,297,001.504	2,458.180	201	6,326,561.505	2,297,009.558	2,457.513
162	6,326,561.713	2,297,004.112	2,457.814	202	6,326,575.787	2,297,010.541	2,458.308
163	6,326,561.573	2,297,005.350	2,457.701	203	6,326,589.690	2,297,011.690	2,459.410
164	6,326,561.135	2,297,006.158	2,457.794	204	6,326,596.059	2,297,015.611	2,460.933
165	6,326,557.868	2,297,007.040	2,457.980	205	6,326,598.335	2,297,023.621	2,462.385
166	6,326,551.516	2,297,008.597	2,458.174	206	6,326,600.651	2,297,023.361	2,462.086
167	6,326,591.423	2,296,994.728	2,458.620	207	6,326,611.370	2,297,023.005	2,460.491
168	6,326,585.725	2,296,993.889	2,458.266	208	6,326,618.689	2,297,020.846	2,460.518
169	6,326,579.716	2,296,993.392	2,457.984	209	6,326,631.825	2,297,018.482	2,460.267
170	6,326,574.529	2,296,993.109	2,457.747	210	6,326,646.736	2,297,013.657	2,461.395
171	6,326,562.331	2,296,993.325	2,457.043	211	6,326,662.411	2,297,014.750	2,462.100
172	6,326,558.748	2,296,993.911	2,456.803	212	6,326,673.470	2,297,007.413	2,462.843
173	6,326,557.264	2,296,994.151	2,456.687	213	6,326,673.300	2,296,991.086	2,463.063
174	6,326,578.711	2,296,987.240	2,458.032	214	6,326,681.158	2,296,984.177	2,463.604
175	6,326,574.416	2,296,986.442	2,457.818	215	6,326,677.094	2,296,978.874	2,463.510
176	6,326,570.576	2,296,985.998	2,457.611	216	6,326,676.312	2,296,962.269	2,463.634
177	6,326,571.926	2,296,999.040	2,457.716	217	6,326,662.099	2,296,959.958	2,463.019
178	6,326,573.743	2,297,004.396	2,458.141	218	6,326,605.092	2,296,964.729	2,459.992
179	6,326,569.050	2,297,008.139	2,457.942	219	6,326,561.192	2,296,980.069	2,457.646
180	6,326,558.444	2,297,008.352	2,457.387	220	6,326,558.037	2,296,984.610	2,457.290
181	6,326,523.922	2,297,008.569	2,455.394	221	6,326,565.697	2,296,990.109	2,457.624
182	6,326,522.868	2,297,007.116	2,455.380	222	6,326,569.041	2,296,985.580	2,457.950
183	6,326,527.564	2,297,003.921	2,455.610	223	6,326,551.729	2,296,999.603	2,457.211
184	6,326,552.294	2,297,003.569	2,456.781	224	6,326,553.818	2,296,994.051	2,456.815
185	6,326,556.455	2,296,999.168	2,456.976	225	6,326,544.858	2,296,991.556	2,456.209
186	6,326,564.773	2,296,999.082	2,457.271	226	6,326,542.651	2,296,997.480	2,455.741
187	6,326,548.333	2,296,992.700	2,456.289	227	6,327,255.603	2,296,973.734	2,489.799
188	6,326,547.042	2,296,992.160	2,456.139	228	6,327,157.111	2,296,974.460	2,485.988
189	6,326,545.510	2,296,991.775	2,456.088	229	6,327,061.759	2,296,975.294	2,482.046
190	6,326,531.245	2,296,965.101	2,455.789	230	6,326,966.124	2,296,975.942	2,477.845
191	6,326,517.826	2,296,969.927	2,455.069	231	6,326,868.710	2,296,976.560	2,473.283
192	6,326,493.587	2,296,984.298	2,453.511	232	6,326,808.839	2,296,976.981	2,470.431
193	6,326,485.266	2,296,994.156	2,452.846	233	6,326,707.046	2,296,977.774	2,464.994
194	6,326,484.428	2,296,998.669	2,452.484	234	6,326,694.130	2,296,977.904	2,464.312
195	6,326,510.451	2,296,998.541	2,453.961	235	6,326,664.356	2,296,978.057	2,462.719
196	6,326,513.208	2,297,005.705	2,454.858	236	6,326,596.598	2,296,978.714	2,459.150
197	6,326,519.975	2,297,008.269	2,455.250	237	6,326,552.983	2,296,978.844	2,456.732
198	6,326,537.561	2,297,007.344	2,456.196	238	6,326,507.579	2,296,979.005	2,454.182
199	6,326,541.877	2,297,008.129	2,456.511	239	6,326,462.873	2,296,979.169	2,451.781
200	6,326,553.797	2,297,009.623	2,457.143	240	6,326,432.761	2,296,979.332	2,450.055

(*table continues*)

ANNEX A: GNSS SURVEY COORDINATES

POINT	EASTING	NORTHING	HEIGHT
241	6,326,615.198	2,296,960.088	2,460.280
2001	6,326,438.584	2,296,961.725	2,451.313
2002	6,326,547.021	2,296,961.129	2,457.466
2003	6,326,749.916	2,296,958.193	2,468.325
2004	6,327,040.198	2,296,952.355	2,481.994
2005	6,327,311.479	2,296,950.453	2,492.773

DATE OF INCIDENT *(MONTH-DAY-YEAR)*	TIME *(2400)*	NCIC	OFFICER I.D.	AGENCY/AREA CASE NUMBER	MAIT CASE NUMBER	PAGE
09/06/2025	1003	9655	19871	9655-2025-01454	BD-070-25	

ANNEX B: BOSCH CDR REPORT – 2020 FORD POLICE INTERCEPTOR UTILITY

The report contained within this annex was generated using the Bosch CDR software after imaging the ACM installed in the Ford.

IMPORTANT NOTICE: Robert Bosch LLC and the manufacturers whose vehicles are accessible using the CDR System urge end users to use the latest production release of the Crash Data Retrieval system software when viewing, printing or exporting any retrieved data from within the CDR program. Using the latest version of the CDR software is the best way to ensure that retrieved data has been translated using the most current information provided by the manufacturers of the vehicles supported by this product.

CDR File Information

User Entered VIN/Frame Number	1FM5K8AW5LGB66667
User	S. Farber, ID 18558
Case Number	BD-070-25
EDR Data Imaging Date	09/25/2025
Crash Date	09/06/2025
Filename	1FM5K8AW5LGB66667_ACM.CDRnx
Saved on	09/25/2025, 09:25:57
Imaged Product Family	F00E900038
Imaged with CDR version	Crash Data Retrieval 2 Tool 25.1.1030
Imaged with software Licensed to (CompanyName)	California Highway Patrol
Reported with CDR version	Crash Data Retrieval 2 Tool 25.1.1030
Reported with software Licensed to (CompanyName)	California Highway Patrol
EDR Device Type	Airbag Control Module
Event(s) recovered	First Record

Comments

VIN: 1FM5K8AW5LGB66667
2020 Ford Police Interceptor Utility
Inspection location: Stagecoach Towing, Banning
Individuals present: J. Edmunds, ID 19379, and R. Clough, ID A13341

Observed visible restraint deployment(s): Driver frontal, driver knee bolster, driver and right-front passenger side seat, and the left and right curtain airbags. Driver seat belt webbing extended and locked with the latch plate inserted in the buckle. The shoulder belt was routed behind the seat back. Right-front passenger seat belt webbing retracted and unlocked. Rear passenger seat belt webbings extended and unlocked with the latch plates inserted in the alternate buckles attached to the cage.

Imaging authorized by search warrant

Ignition key UTL
Odometer reading/units: Digital
Recommended tire size (sticker): 255/60R18
Drive tire size(s) (actual): 255/60R18

Imaging completed by direct-to-module access due electrical system damage
Additional power-up used: Battery pack

Other notes:

Data Limitations

Data Imaging :

CAUTION : When imaging data directly from the RCM on a bench top, make sure the RCM is placed on a flat surface without any movement (static) while connected to and powered by the CDR interface. Not following the above guideline for bench top imaging could risk inducing new events to be recorded in the RCM and possibly overwriting a Non airbag deployment.

Note that the RCM Adapter Detected during Download parameter equal to " Yes" indicates that the EDR data was collected directly from the RCM. When equal to "No", it indicates that the EDR data was collected through the OBD II from the vehicle.

Restraints Control Module (RCM) Recorded Crash Event(s):

The RCM can store up to two crash events. Event types are categorized as follow:

1. Non deployment trigger event is an event in which EDR recording trigger threshold is met or exceeded (minimum of 5 mph (8kph) Accumulated Delta Velocity within 150ms interval), but no device(s) have deployed. The data from such event can be overwritten by subsequent events.

2. Airbag deployment event is an event in which frontal, side or curtain airbags have deployed. Note that such event cannot be overwritten or cleared from the Restraints Control Module (RCM). Once the RCM has deployed any airbag device(s), the RCM must be replaced.

3. Some RCM may also categorize Non airbag deployment event. This type is an event in which non airbag devices such as pretentioners, knee bolster etc… have deployed. Note that such event can be overwritten given a subsequent "deployment " event.

"Time zero" or Event Beginning of any event (First Record or Second Record) is defined as the first Algorithm wake up during that event. So all the Pre-Crash, At Event, Delta V Data, deployment times etc… are relative to "Time zero".

It is possible that conditions in a crash may result in an incomplete event data record.

EDR Data Elements Overview /Interpretation in CDR Report :

Under CDR File Information Section

- Event(s) recovered indicates if an event was detected and recorded by RCM. If no event is detected, it will indicate "none". If a trigger or non airbag deployment event is detected, it will indicate "unlocked event". If an airbag deployment is detected, it will indicate "locked frontal event", or "locked side event", or "locked rollover event".

Under System Status at Event Section

- Complete file recorded indicates if data from the recorded event has been fully written to the RCM memory.
- If the RCM detected a peripheral crash sensor was lost during an event, the crash sensor would be identified as well as the time it was lost during that event relative to Time zero. If no loss of a peripheral crash sensor, nothing would be displayed. Note in some vehicles, loss of a peripheral crash sensor may lead to the loss of another peripheral crash sensor due to shared communication.

Under Deployment Data Section

- If the RCM commanded a deployment during an event, the deployment device(s) would be identified as well as the time the RCM commanded its deployment relative to Time zero. If no device was commanded to deploy by the RCM, nothing (no deployment device(s)) would be displayed.

Under Pre-Crash Data -5 to 0 sec

- Steering Wheel Angle if Applicable : positive value indicates left turn, and negative value would indicate right turn.
- Stability Control Lateral Acceleration if Applicable : Lateral Acceleration (Y-direction) is the acceleration along the lateral axis of the vehicle,

reported as positive when accelerating to the left.

- Stability Control Longitudinal Acceleration if Applicable : Longitudinal Acceleration (X-direction) is the acceleration along the longitudinal axis of the vehicle, reported as positive when accelerating in a forward direction.

- Stability Control Yaw Rate if Applicable : The Yaw Axis is the vertical axis of the vehicle, generally perpendicular to the plane of the road. A positive Yaw Rate is counter-clockwise when observing the vehicle from above.

- Stability Control Roll Rate if Applicable : The Roll Axis is the longitudinal axis of the vehicle, generally aligned with the primary axis of motion of the vehicle. A positive Roll Rate is counter-clockwise when observing the vehicle from the front.

Under Longitudinal Crash Pulse

- Delta-V, longitudinal : SAE J211 sign convention, negative value generally indicates a front crash and positive value generally indicates a rear crash. Longitudinal delta-V reflects the change in forward velocity that the sensing system experienced from Time zero. It is not the speed the vehicle was traveling before the event. Note that the vehicle speed is recorded separately. This data should be examined in conjunction with other available physical evidence from the vehicle and scene when assessing occupant or vehicle longitudinal delta-V.

Under Lateral Crash Pulse

- Delta-V, lateral : SAE J211 sign convention, Positive value generally indicates a driver side crash and negative value generally indicates a passenger side crash.

Under Rollover Sensor Data (if Applicable)

- Vehicle roll angle if applicable : The Roll Axis is the longitudinal axis of the vehicle, generally aligned with the primary axis of motion of the vehicle. A positive Roll Angle is counter-clockwise when observing the vehicle from the front.

Data Sources :

The Restraints Control Module (RCM) contains all recorded data on any event. Data collected from the RCM comes from multiple sources:

1. Internal to the RCM such as internal sensors for delta Velocity data, rollover angle data if applicable, etc... which are measured, calculated and stored internally.

2. External to the RCM but with a direct connection such as buckle switches, peripheral crash sensors, seat track switch(s) etc... which are measured, calculated and stored internally.

3. External Modules to the RCM such as Powertrain Control Module, Brake Control Module, etc... Theses modules communicate to the RCM via Vehicle Communication Network. The RCM stores the received data internally.

02018_RCM -RC8_r001

Vehicle Selected

Brand	Ford
Model Year	2020
Model	Explorer (includes Police Interceptor)

System Status at Time of Retrieval

VIN As Programmed into RCM at Factory	1FM5K8AW5LGB66667
Current VIN (From PCM)	1FM5K8AW5LGB66667
Ignition Cycle, Download (First Record)	3461
Ignition Cycle, Download (Second Record)	N/A
Restraints Control Module Part Number	LB5T-14B321-PA
Restraints Control Module Serial Number	3008008234040000
Restraints Control Module Software Part Number (Version)	GN15-14C028-CA
Restraints Control Module Calibration Part Number (Version)	LB5T-14C635-AB
Driver/Center Frontal Restraints Sensor Serial Number	N/A
Restraints Control Module Calibration Part Number (Version)	LB5T-14C635-AB
Driver Side Restraint Sensor 1 Serial Number	N/A
Driver Side Restraint Sensor 2 Serial Number	N/A
Passenger Frontal Restraints Sensor Serial Number	N/A
Passenger Side Restraint Sensor 1 Serial Number	N/A
Passenger Side Restraints Sensor 2 Serial Number	N/A
Internal Sensor Serial Number	9EF0EC5C4F2B
Driver Side Restraints Sensor 3 Serial Number	N/A
Passenger Side Restraints Sensor 3 Serial Number	N/A
Driver Side Restraints Sensor 4 Serial Number	N/A
Passenger Side Restraints Sensor 4 Serial Number	N/A
Steering Wheel Location	Left Hand Drive
Event Type	locked frontal event Fuel cutoff level 1

System Status at Event (First Record)

Complete File Recorded (Yes,No)	Yes
Multi-Event, Number of Events	1
Time From Event 1 to 2 (sec)	N/A
Lifetime Operating Timer at Event Time Zero (sec)	45501335
Key-On Timer at Event Time Zero (sec)	19725
Vehicle Voltage at Time Zero (V)	12.8
Energy Reserve Mode Entered During Event (Yes, No)	Yes
Time Driver Side/Center Frontal Restraints Sensor Lost Relative to Time Zero (ms)	28
Longitudinal Delta-V Time Zero Offset (ms)	3.5
Lateral Delta-V Time Zero Offset (ms)	3.5
Roll Angle Time Zero Offset (ms)	3.5
Time RCM longitudinal acceleration reached maximum sensor range (i.e. 100g) (ms)	maximum not reached
Time RCM lateral acceleration reached maximum sensor range (i.e. 100g) (ms)	maximum not reached
Time from Time zero to Frontal Algorithm Wake Up (ms)	Wake up threshold reached at Time Zero
Time from Time zero to Side Algorithm Wake Up (ms)	Wake up threshold not reached
Time from Time zero to Rear Algorithm Wake Up (ms)	Wake up threshold not reached
Time from Time Zero to Rollover Algorithm Wake Up (ms)	Wake up threshold not reached
Time from Time zero to Frontal Algorithm Reset (ms)	138
Time from Time zero to Side Algorithm Reset (ms)	Reset threshold not reached
Time from Time zero to Rear Algorithm Reset (ms)	Reset threshold not reached
Time from Time zero to Rollover Algorithm Reset (ms)	Reset threshold not reached
RCM number	9EF0EC5C4F2B
RCM internal flag	FFFF0000
Fuel Cutoff Algorithm Decision Time (ms)	32

Deployment Data (First Record)

Frontal Airbag Deployment, Time to First Stage Deployment, Driver (ms)	18.0
Frontal Airbag Deployment, Time to 2nd Stage, Driver (ms)	28.0
Side (Thorax) Airbag Deployment, Time to Deploy, Driver (ms)	18.0
Side (Thorax) Airbag Deployment, Time to Deploy, Right Front Passenger (ms)	18.0
Side Curtain Airbag Deployment, Time to Deploy, Driver Side (ms)	18.0
Side Curtain Airbag Deployment, Time to Deploy, Passenger Right Side (ms)	18.0
Pretensioner (Retractor) Deployment, Time to Fire, Driver (ms)	10.0
Inflatable Knee Bolster Deployment, Time to Fire, Driver (ms)	18.0
Pretensioner (Anchor) Deployment, Time to Fire, Driver (ms)	10.0
Maximum Delta-V, Longitudinal (km/h)	-50.97
Time, Maximum Delta-V Longitudinal (ms)	106.5
RCM High-G (Longitudinal), Discriminating Deployment	Yes
RCM High-G (Longitudinal), Safing	Yes
RCM High-G (Lateral), Discriminating Deployment	Yes
RCM High-G (Lateral), Safing	Yes

Pre-Crash Data -1 sec (First Record)

Ignition cycle, Crash	3460
Frontal Air Bag Warning Lamp, On/Off	Off
Safety Belt Status, Driver	Belted
Safety Belt Status, Front Passenger	Unbelted
Seat Track Position Switch, Foremost, Status, Driver	Rearward
Seat Track Position Switch, Foremost, Status, Front Passenger	Rearward
Rear Safety Belt Status, 2nd Row Driver Side	Unbelted
Rear Safety Belt Status, 2nd Row Passenger Side	Unbelted
Brake Telltale	Off(No)
ABS Telltale	Off
ESC/TC Telltale	Off
ESC/TC Off Telltale	Default Mode
Powertrain Wrench Telltale	Off
MIL Telltale (Powertrain Malfunction Indicator)	Fresh Off
Global Real Time (sec)	176355404.8

Pre-Crash Data -5 to 0 sec [2 samples/sec] (First Record)

Time (sec)	Driver Gear Selection (Auto Trans)	Wheel Torque Requested (N-m)	Total Arbitrated Brake Torque (N-m)	Ignition Status	Speed Control Status
-5.0	Drive	92	0	Run	Off
-4.5	Drive	-40	0	Run	Off
-4.0	Drive	-108	0	Run	Off
-3.5	Drive	-160	0	Run	Off
-3.0	Drive	-220	0	Run	Off
-2.5	Drive	-40	0	Run	Off
-2.0	Drive	-28	0	Run	Off
-1.5	Drive	-84	8824	Run	Off
-1.0	Drive	-148	15128	Run	Off
-0.5	Drive	60	10772	Run	Off
0.0	Drive	-4	9512	Run	Off

Pre-Crash Data -5 to 0 sec [10 samples/sec] - Table 1 of 2 (First Record)

Time (sec)	ABS Activity (Engaged, Non-Engaged)	Stability Control Active	Traction Control Via Engine	Traction Control via Brakes	Stability Control Lateral Acceleration (g)
-5.0	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	0.05
-4.9	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	0.02
-4.8	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	-0.03
-4.7	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	-0.03
-4.6	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	-0.01
-4.5	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	-0.02
-4.4	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	-0.03
-4.3	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	-0.03
-4.2	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	-0.01
-4.1	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	0.05
-4.0	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	0.03
-3.9	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	0.02
-3.8	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	0.04
-3.7	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	0.02
-3.6	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	0.04
-3.5	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	0.07
-3.4	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	0.03
-3.3	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	0.03
-3.2	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	0.01
-3.1	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	0.03
-3.0	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	0.03
-2.9	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	0.05
-2.8	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	0.05
-2.7	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	0.03
-2.6	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	0.02
-2.5	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	0.01

Pre-Crash Data -5 to 0 sec [10 samples/sec] - Table 1 of 2 (First Record)

Time (sec)	ABS Activity (Engaged, Non-Engaged)	Stability Control Active	Traction Control Via Engine	Traction Control via Brakes	Stability Control Lateral Acceleration (g)
-2.4	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	0.01
-2.3	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	0.00
-2.2	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	-0.03
-2.1	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	-0.04
-2.0	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	0.00
-1.9	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	0.04
-1.8	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	0.02
-1.7	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	-0.07
-1.6	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	-0.10
-1.5	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	-0.10
-1.4	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	-0.06
-1.3	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	0.02
-1.2	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	0.04
-1.1	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	0.00
-1.0	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	-0.05
-0.9	Off/non-engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	-0.16
-0.8	On/engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	-0.42
-0.7	On/engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	-0.46
-0.6	On/engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	-0.62
-0.5	On/engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	-0.59
-0.4	On/engaged	On/engaged (Yes)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	-0.67
-0.3	On/engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	-0.74
-0.2	On/engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	-0.66
-0.1	On/engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	-0.71
0.0	On/engaged	Off/non-engaged (No)	Off/non-engaged (Inactive)	Off/non-engaged (Inactive)	-0.68

Pre-Crash Data -5 to 0 sec [10 samples/sec] - Table 2 of 2 (First Record)

Time (sec)	Stability Control Longitudinal Acceleration (g)	Stability Control Yaw Rate (deg/sec)	Stability Control Roll Rate (deg/sec)	Steering Wheel Angle (deg)	Steering Wheel Angle Quality Factor
-5.0	-0.08	-0.28	-0.94	0.0	OK
-4.9	-0.09	-0.40	-1.08	0.0	OK
-4.8	-0.07	-0.47	1.69	0.0	OK
-4.7	-0.05	-0.13	-0.62	0.0	OK
-4.6	-0.05	-0.13	-2.01	0.0	OK
-4.5	-0.05	-0.09	-0.93	0.0	OK
-4.4	-0.06	0.03	1.21	0.0	OK
-4.3	-0.05	0.15	2.16	0.0	OK
-4.2	-0.05	0.27	1.87	0.0	OK
-4.1	-0.06	0.18	1.57	0.0	OK
-4.0	-0.06	0.33	0.49	1.0	OK
-3.9	-0.08	0.42	0.89	1.0	OK
-3.8	-0.08	0.49	2.03	1.0	OK
-3.7	-0.10	0.56	3.25	1.0	OK
-3.6	-0.08	0.42	0.19	1.0	OK
-3.5	-0.08	0.29	-0.13	1.0	OK
-3.4	-0.07	0.15	0.02	1.0	OK
-3.3	-0.06	0.15	0.89	1.0	OK
-3.2	-0.05	0.10	0.33	1.0	OK
-3.1	-0.07	0.16	1.97	1.0	OK
-3.0	-0.07	0.40	-0.37	1.0	OK
-2.9	-0.09	0.34	-2.16	1.0	OK
-2.8	-0.08	0.23	-1.83	1.0	OK
-2.7	-0.09	0.27	-0.44	1.0	OK
-2.6	-0.10	0.35	0.29	0.0	OK
-2.5	-0.08	0.26	-0.35	1.0	OK
-2.4	-0.06	0.29	-1.74	0.0	OK
-2.3	-0.04	0.18	-0.04	0.0	OK
-2.2	-0.04	-0.04	3.86	0.0	OK
-2.1	-0.05	-0.15	4.89	0.0	OK
-2.0	-0.05	-0.02	0.15	0.0	OK
-1.9	-0.06	-0.09	-0.83	1.0	OK
-1.8	-0.09	0.02	0.19	0.0	OK
-1.7	-0.48	-0.23	-1.25	-5.0	OK
-1.6	-0.66	-1.80	-1.88	-7.9	OK
-1.5	-0.67	-3.04	-2.06	-2.0	OK
-1.4	-0.74	-1.70	-0.30	7.0	OK
-1.3	-0.72	1.71	-0.23	9.0	OK
-1.2	-0.75	3.67	2.34	7.0	OK
-1.1	-0.83	2.62	1.89	-9.0	OK
-1.0	-0.87	-1.88	-3.10	-21.0	OK
-0.9	-0.80	-7.01	-4.02	-30.0	OK
-0.8	-0.67	-10.84	-4.69	-45.0	OK
-0.7	-0.59	-12.15	-0.38	-45.0	OK
-0.6	-0.53	-12.77	0.94	-41.0	OK
-0.5	-0.53	-12.90	-1.83	-42.0	OK
-0.4	-0.44	-10.76	0.42	-40.0	OK

Pre-Crash Data -5 to 0 sec [10 samples/sec] - Table 2 of 2 (First Record)

Time (sec)	Stability Control Longitudinal Acceleration (g)	Stability Control Yaw Rate (deg/sec)	Stability Control Roll Rate (deg/sec)	Steering Wheel Angle (deg)	Steering Wheel Angle Quality Factor
-0.3	-0.49	-8.92	1.19	-51.0	OK
-0.2	-0.51	-9.60	1.53	-58.0	OK
-0.1	-0.47	-10.64	1.08	-53.9	OK
0.0	-0.48	-13.73	-4.99	-48.0	OK

Pre-Crash Data -5 to 0 sec [5 samples/sec] - Table 1 of 4 (First Record)

Time (sec)	Speed, Vehicle Indicated (km/h)	Speed, Vehicle Indicated, Quality Factor	Accelerator Pedal, % Full	Accelerator Pedal, % Full, Quality Factor	Service Brake, On/Off
-5.0	160.9	OK	0	OK	OFF(Driver_Not_Braking)
-4.8	160.9	OK	0	OK	OFF(Driver_Not_Braking)
-4.6	160.7	OK	0	OK	OFF(Driver_Not_Braking)
-4.4	160.4	OK	0	OK	OFF(Driver_Not_Braking)
-4.2	160.2	OK	0	OK	OFF(Driver_Not_Braking)
-4.0	160.0	OK	0	OK	OFF(Driver_Not_Braking)
-3.8	159.9	OK	0	OK	OFF(Driver_Not_Braking)
-3.6	159.7	OK	0	OK	OFF(Driver_Not_Braking)
-3.4	159.5	OK	0	OK	OFF(Driver_Not_Braking)
-3.2	159.1	OK	0	OK	OFF(Driver_Not_Braking)
-3.0	158.8	OK	0	OK	OFF(Driver_Not_Braking)
-2.8	158.8	OK	0	OK	OFF(Driver_Not_Braking)
-2.6	158.4	OK	7	OK	OFF(Driver_Not_Braking)
-2.4	158.3	OK	9	OK	OFF(Driver_Not_Braking)
-2.2	158.2	OK	9	OK	OFF(Driver_Not_Braking)
-2.0	158.0	OK	0	OK	OFF(Driver_Not_Braking)
-1.8	158.0	OK	0	OK	ON(Driver_Braking)
-1.6	155.4	OK	0	OK	ON(Driver_Braking)
-1.4	148.8	OK	0	OK	ON(Driver_Braking)
-1.2	146.2	OK	0	OK	ON(Driver_Braking)
-1.0	138.8	OK	0	OK	ON(Driver_Braking)
-0.8	135.4	OK	0	OK	ON(Driver_Braking)
-0.6	127.4	OK	0	OK	ON(Driver_Braking)
-0.4	125.3	OK	0	OK	ON(Driver_Braking)
-0.2	122.5	OK	0	OK	ON(Driver_Braking)
0.0	115.7	OK	0	OK	ON(Driver_Braking)

Pre-Crash Data -5 to 0 sec [5 samples/sec] - Table 2 of 4 (First Record)

Time (sec)	Service brake, on/off Quality Factor	Engine RPM	Brake Pre-Charge Request	Brake Assist Sensitivity Level	Brake Deceleration Request (m/s^2)
-5.0	OK	2962	No PreCharge Request	Normal	0
-4.8	OK	2964	No PreCharge Request	Normal	0
-4.6	OK	2956	No PreCharge Request	Normal	0
-4.4	OK	2958	No PreCharge Request	Normal	0
-4.2	OK	2958	No PreCharge Request	Normal	0
-4.0	OK	2950	No PreCharge Request	Normal	0
-3.8	OK	2950	No PreCharge Request	Normal	0
-3.6	OK	2940	No PreCharge Request	Normal	0
-3.4	OK	2936	No PreCharge Request	Normal	0
-3.2	OK	2926	No PreCharge Request	Normal	0
-3.0	OK	2928	No PreCharge Request	Normal	0
-2.8	OK	2924	No PreCharge Request	Normal	0
-2.6	OK	2914	No PreCharge Request	Normal	0
-2.4	OK	2916	No PreCharge Request	Normal	0
-2.2	OK	2914	No PreCharge Request	Normal	0
-2.0	OK	2922	No PreCharge Request	Normal	0
-1.8	OK	2912	No PreCharge Request	Normal	0
-1.6	OK	2784	No PreCharge Request	Normal	0
-1.4	OK	2716	No PreCharge Request	Normal	0
-1.2	OK	2644	No PreCharge Request	Normal	0
-1.0	OK	2490	No PreCharge Request	Normal	0
-0.8	OK	2458	No PreCharge Request	Normal	0
-0.6	OK	2276	No PreCharge Request	Normal	0
-0.4	OK	2256	No PreCharge Request	Normal	0
-0.2	OK	2304	No PreCharge Request	Normal	0
0.0	OK	2138	No PreCharge Request	Normal	0

Pre-Crash Data -5 to 0 sec [5 samples/sec] - Table 3 of 4 (First Record)

Time (sec)	Brake Override Status Flag	Brake Deceleration Request Enable	Large Driver Steering or Accel Pedal Input	Collision Mitigation System Fault	Collision Mitigation System Enabled
-5.0	Fresh_data_Off	No (no CMbB deceleration request)	No	No (not denied)	No
-4.8	Fresh_data_Off	No (no CMbB deceleration request)	No	No (not denied)	No
-4.6	Fresh_data_Off	No (no CMbB deceleration request)	No	No (not denied)	No
-4.4	Fresh_data_Off	No (no CMbB deceleration request)	No	No (not denied)	No
-4.2	Fresh_data_Off	No (no CMbB deceleration request)	No	No (not denied)	No
-4.0	Fresh_data_Off	No (no CMbB deceleration request)	No	No (not denied)	No
-3.8	Fresh_data_Off	No (no CMbB deceleration request)	No	No (not denied)	No
-3.6	Fresh_data_Off	No (no CMbB deceleration request)	No	No (not denied)	No
-3.4	Fresh_data_Off	No (no CMbB deceleration request)	No	No (not denied)	No
-3.2	Fresh_data_Off	No (no CMbB deceleration request)	No	No (not denied)	No
-3.0	Fresh_data_Off	No (no CMbB deceleration request)	No	No (not denied)	No
-2.8	Fresh_data_Off	No (no CMbB deceleration request)	No	No (not denied)	No
-2.6	Fresh_data_Off	No (no CMbB deceleration request)	No	No (not denied)	No
-2.4	Fresh_data_Off	No (no CMbB deceleration request)	No	No (not denied)	No
-2.2	Fresh_data_Off	No (no CMbB deceleration request)	No	No (not denied)	No
-2.0	Fresh_data_Off	No (no CMbB deceleration request)	No	No (not denied)	No
-1.8	Fresh_data_Off	No (no CMbB deceleration request)	No	No (not denied)	No
-1.6	Fresh_data_Off	No (no CMbB deceleration request)	No	No (not denied)	No

Pre-Crash Data -5 to 0 sec [5 samples/sec] - Table 3 of 4 (First Record)

Time (sec)	Brake Override Status Flag	Brake Deceleration Request Enable	Large Driver Steering or Accel Pedal Input	Collision Mitigation System Fault	Collision Mitigation System Enabled
-1.4	Fresh_data_Off	No (no CMbB deceleration request)	No	No (not denied)	No
-1.2	Fresh_data_Off	No (no CMbB deceleration request)	No	No (not denied)	No
-1.0	Fresh_data_Off	No (no CMbB deceleration request)	No	No (not denied)	No
-0.8	Fresh_data_Off	No (no CMbB deceleration request)	No	No (not denied)	No
-0.6	Fresh_data_Off	No (no CMbB deceleration request)	No	No (not denied)	No
-0.4	Fresh_data_Off	No (no CMbB deceleration request)	No	No (not denied)	No
-0.2	Fresh_data_Off	No (no CMbB deceleration request)	No	No (not denied)	No
0.0	Fresh_data_Off	No (no CMbB deceleration request)	No	No (not denied)	No

Pre-Crash Data -5 to 0 sec [5 samples/sec] - Table 4 of 4 (First Record)

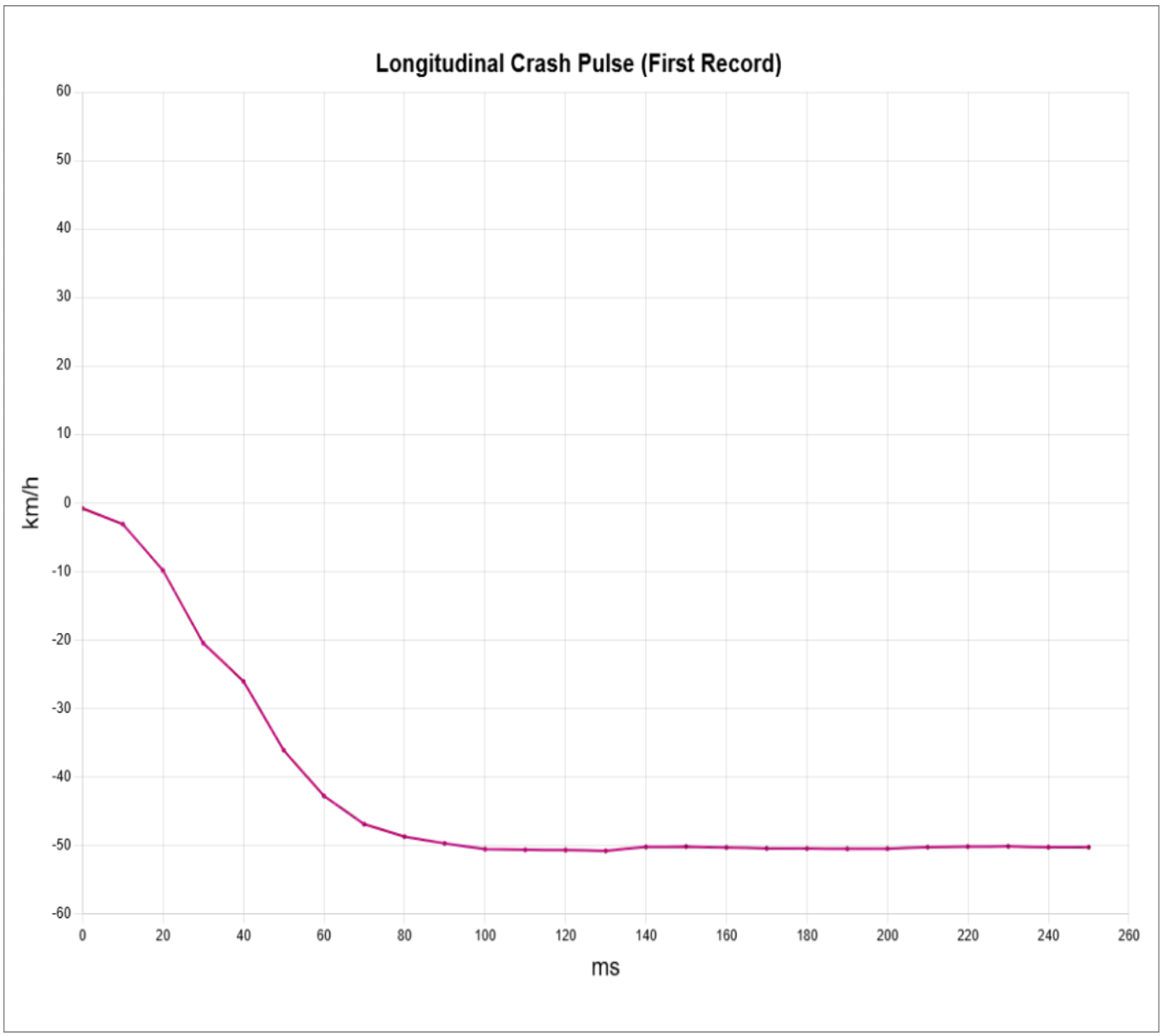
Time (sec)	Cruise Control Driver Accelerator Pedal Override
-5.0	Cruise_Overridden(Active)
-4.8	Cruise_Reg_Not_Overridden(Inactive)
-4.6	Cruise_Reg_Not_Overridden(Inactive)
-4.4	Cruise_Reg_Not_Overridden(Inactive)
-4.2	Cruise_Reg_Not_Overridden(Inactive)
-4.0	Cruise_Reg_Not_Overridden(Inactive)
-3.8	Cruise_Reg_Not_Overridden(Inactive)
-3.6	Cruise_Reg_Not_Overridden(Inactive)
-3.4	Cruise_Reg_Not_Overridden(Inactive)
-3.2	Cruise_Reg_Not_Overridden(Inactive)
-3.0	Cruise_Reg_Not_Overridden(Inactive)
-2.8	Cruise_Reg_Not_Overridden(Inactive)
-2.6	Cruise_Overridden(Active)
-2.4	Cruise_Overridden(Active)
-2.2	Cruise_Overridden(Active)
-2.0	Cruise_Reg_Not_Overridden(Inactive)
-1.8	Cruise_Reg_Not_Overridden(Inactive)
-1.6	Cruise_Reg_Not_Overridden(Inactive)
-1.4	Cruise_Reg_Not_Overridden(Inactive)
-1.2	Cruise_Reg_Not_Overridden(Inactive)
-1.0	Cruise_Reg_Not_Overridden(Inactive)
-0.8	Cruise_Reg_Not_Overridden(Inactive)
-0.6	Cruise_Reg_Not_Overridden(Inactive)
-0.4	Cruise_Reg_Not_Overridden(Inactive)
-0.2	Cruise_Reg_Not_Overridden(Inactive)
0.0	Cruise_Reg_Not_Overridden(Inactive)

Pre-Crash Data -5 to 0 sec [1 samples/sec] (First Record)

Time (sec)	Occupant Size Classification, Front Passenger (Child size Yes/No [Hex value])	Extended Power Status
-5	No [$00]	No Fault
-4	No [$00]	No Fault
-3	No [$00]	No Fault
-2	No [$00]	No Fault
-1	No [$00]	No Fault
0	No [$00]	No Fault

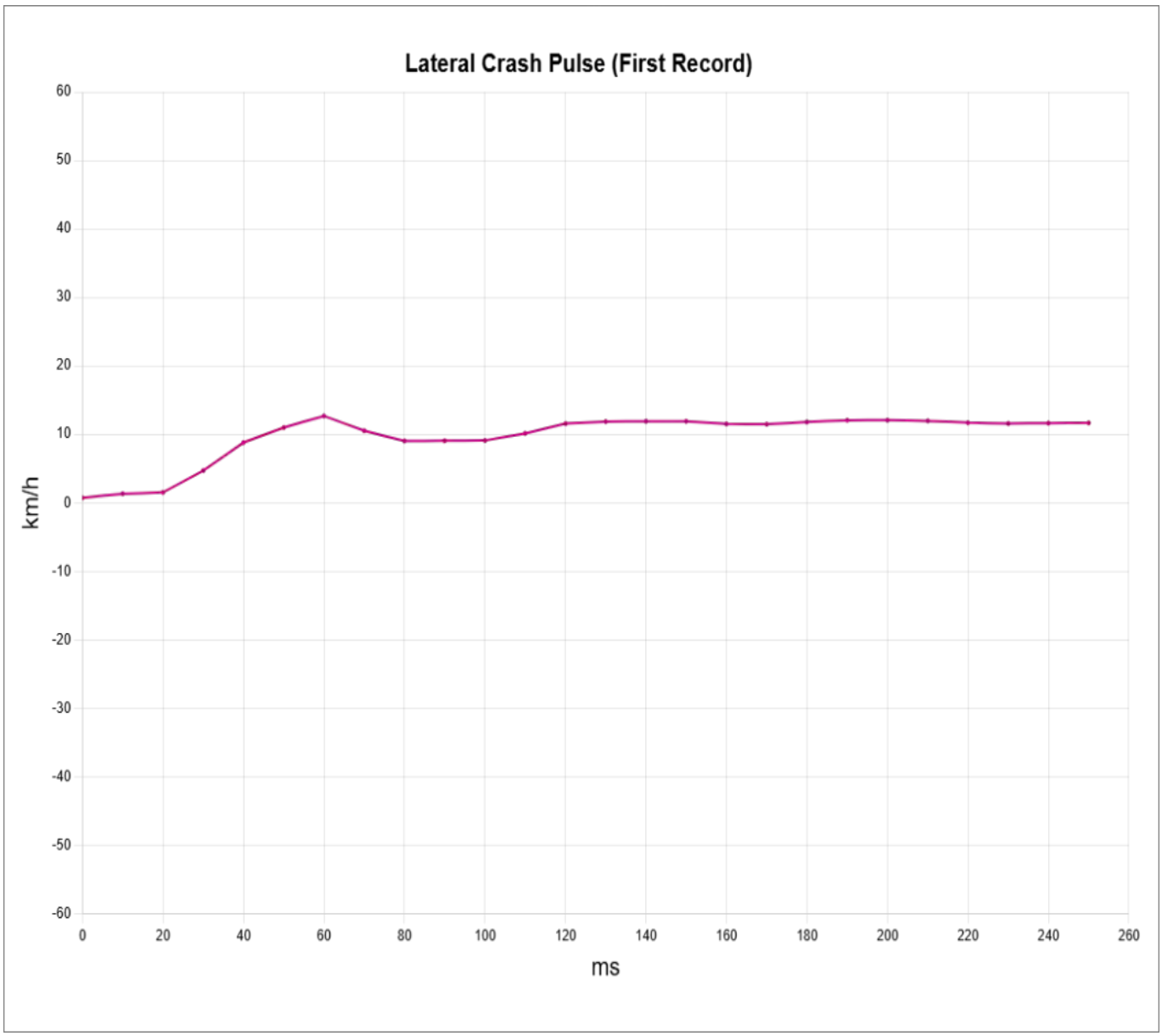
Post-Crash Data 0 to 5 sec [4 samples/sec] (First Record)

Time (sec)	Impact Event Feedback Status
0.00	Normal
0.25	Normal
0.50	Normal
0.75	Normal
1.00	Normal
1.25	Normal
1.50	Normal
1.75	Normal
2.00	Normal
2.25	Normal
2.50	Normal
2.75	Normal
3.00	Normal
3.25	Normal
3.50	Normal
3.75	Normal
4.00	Normal
4.25	Normal
4.50	Normal
4.75	Normal
5.00	Normal


Longitudinal Crash Pulse (First Record)
km/h
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
0
20
40
60
80
100
120
140
160
180
200
220
240
260
ms

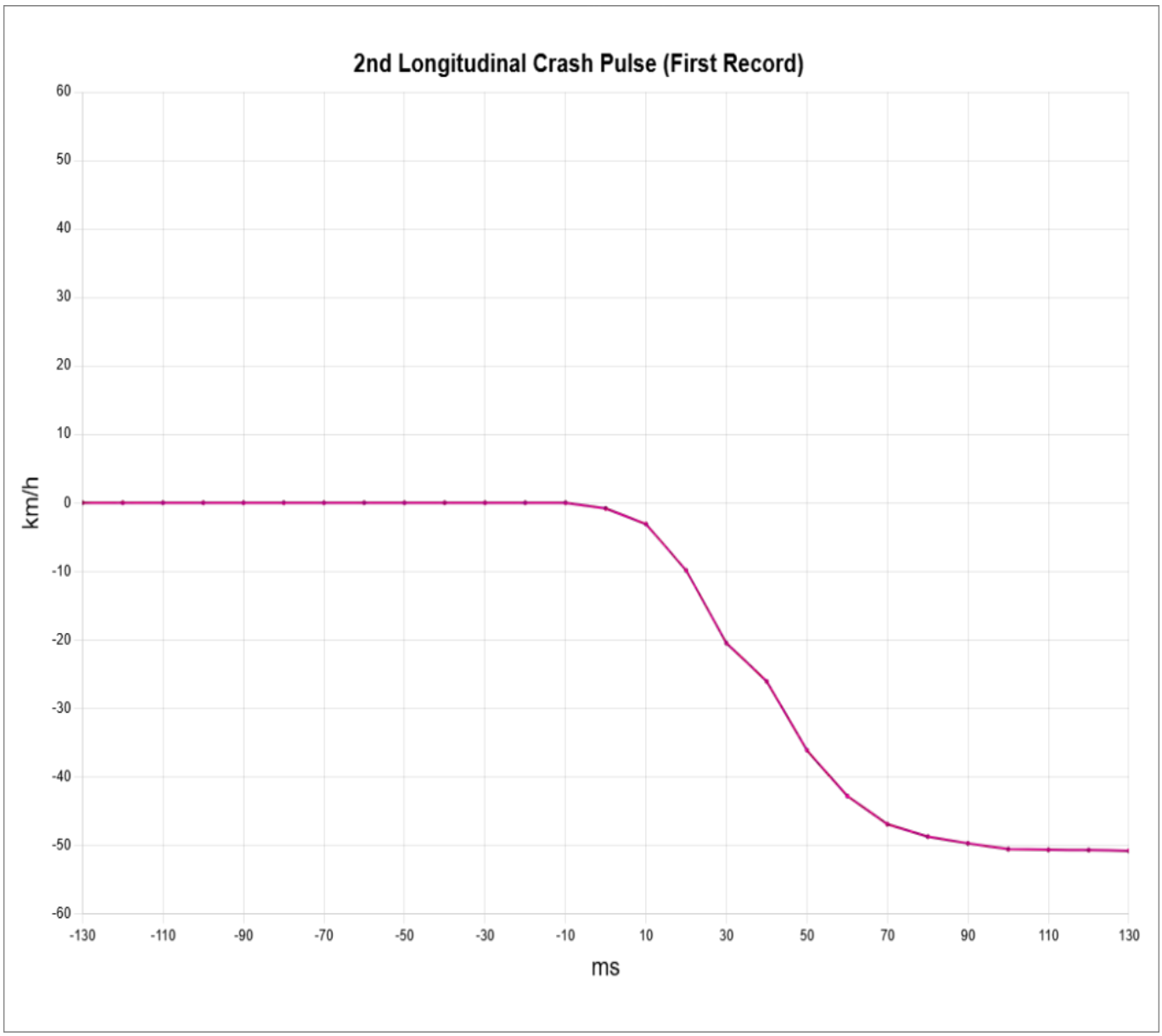
Longitudinal Crash Pulse (First Record)

Time (ms)	Delta-V, longitudinal (km/h)
0	-0.83
10	-3.11
20	-9.87
30	-20.49
40	-26.08
50	-36.14
60	-42.81
70	-46.94
80	-48.75
90	-49.73
100	-50.58
110	-50.68
120	-50.71
130	-50.82
140	-50.26
150	-50.21
160	-50.34
170	-50.48
180	-50.5
190	-50.53
200	-50.51
210	-50.3
220	-50.21
230	-50.18
240	-50.3
250	-50.3


Lateral Crash Pulse (First Record)
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
km/h
0
20
40
60
80
100
120
140
160
180
200
220
240
260
ms

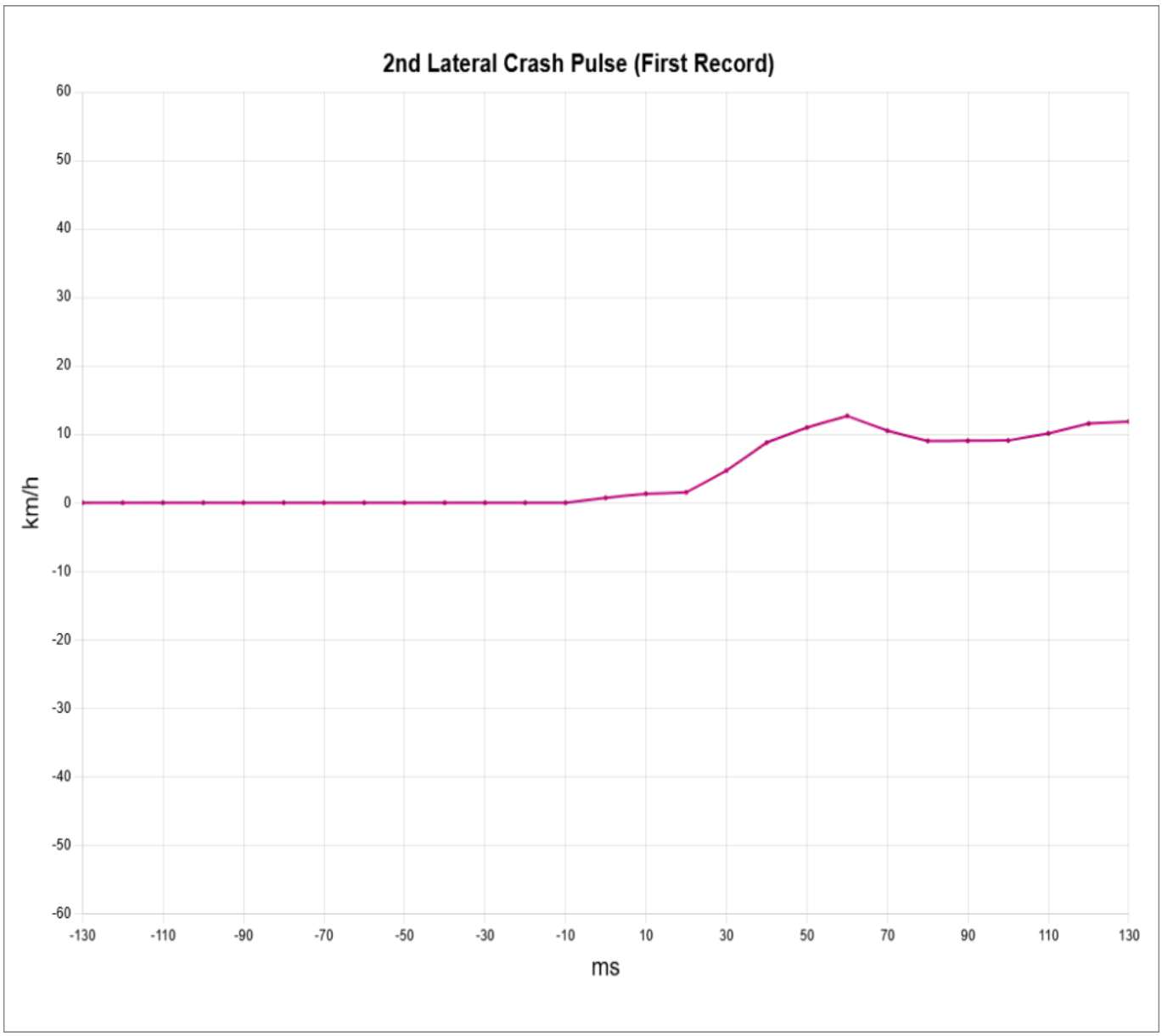
Lateral Crash Pulse (First Record)

Time (ms)	Delta-V, Lateral (km/h)
0	0.72
10	1.33
20	1.52
30	4.7
40	8.8
50	10.99
60	12.68
70	10.52
80	9.04
90	9.06
100	9.1
110	10.14
120	11.56
130	11.86
140	11.91
150	11.9
160	11.52
170	11.47
180	11.79
190	12.05
200	12.06
210	11.96
220	11.69
230	11.58
240	11.63
250	11.66


2nd Longitudinal Crash Pulse (First Record)
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
km/h
-130
-110
-90
-70
-50
-30
-10
10
30
50
70
90
110
130
ms

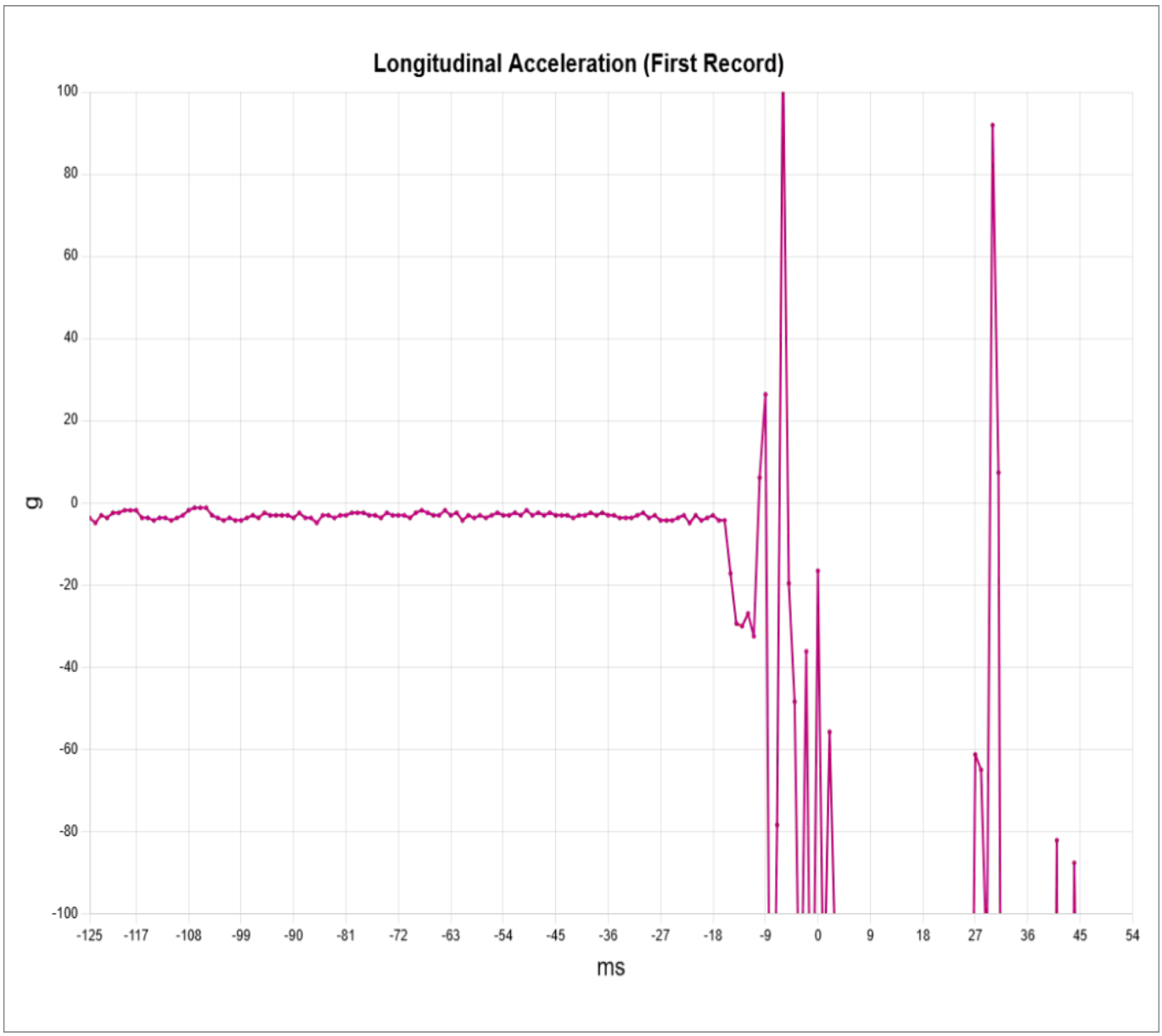
2nd Longitudinal Crash Pulse (First Record)

Time (ms)	2nd Delta-V, longitudinal (km/h)
-130	0
-120	0
-110	0
-100	0
-90	0
-80	0
-70	0
-60	0
-50	0
-40	0
-30	0
-20	0
-10	0
0	-0.83
10	-3.11
20	-9.87
30	-20.49
40	-26.08
50	-36.14
60	-42.81
70	-46.94
80	-48.75
90	-49.73
100	-50.58
110	-50.68
120	-50.71
130	-50.82


2nd Lateral Crash Pulse (First Record)
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
km/h
-130
-110
-90
-70
-50
-30
-10
10
30
50
70
90
110
130
ms

2nd Lateral Crash Pulse (First Record)

Time (ms)	2nd Delta-V, Lateral (km/h)
-130	0
-120	0
-110	0
-100	0
-90	0
-80	0
-70	0
-60	0
-50	0
-40	0
-30	0
-20	0
-10	0
0	0.72
10	1.33
20	1.52
30	4.7
40	8.8
50	10.99
60	12.68
70	10.52
80	9.04
90	9.06
100	9.1
110	10.14
120	11.56
130	11.86


Longitudinal Acceleration (First Record)
g
100
80
60
40
20
0
-20
-40
-60
-80
-100
-125 -117 -108 -99 -90 -81 -72 -63 -54 -45 -36 -27 -18 -9 0 9 18 27 36 45 54
ms

Longitudinal Acceleration (First Record)

Time (ms)	Longitudinal Acceleration (RCM internal high-G accel) (m/s^2)
-125	-3.68
-124	-4.9
-123	-3.06
-122	-3.68
-121	-2.45
-120	-2.45
-119	-1.84
-118	-1.84
-117	-1.84
-116	-3.68
-115	-3.68
-114	-4.29
-113	-3.68
-112	-3.68
-111	-4.29
-110	-3.68
-109	-3.06
-108	-1.84
-107	-1.23
-106	-1.23
-105	-1.23
-104	-3.06
-103	-3.68
-102	-4.29
-101	-3.68
-100	-4.29
-99	-4.29
-98	-3.68
-97	-3.06
-96	-3.68
-95	-2.45
-94	-3.06
-93	-3.06
-92	-3.06
-91	-3.06
-90	-3.68
-89	-2.45
-88	-3.68
-87	-3.68
-86	-4.9
-85	-3.06
-84	-3.06
-83	-3.68
-82	-3.06
-81	-3.06
-80	-2.45
-79	-2.45
-78	-2.45

Longitudinal Acceleration (First Record)

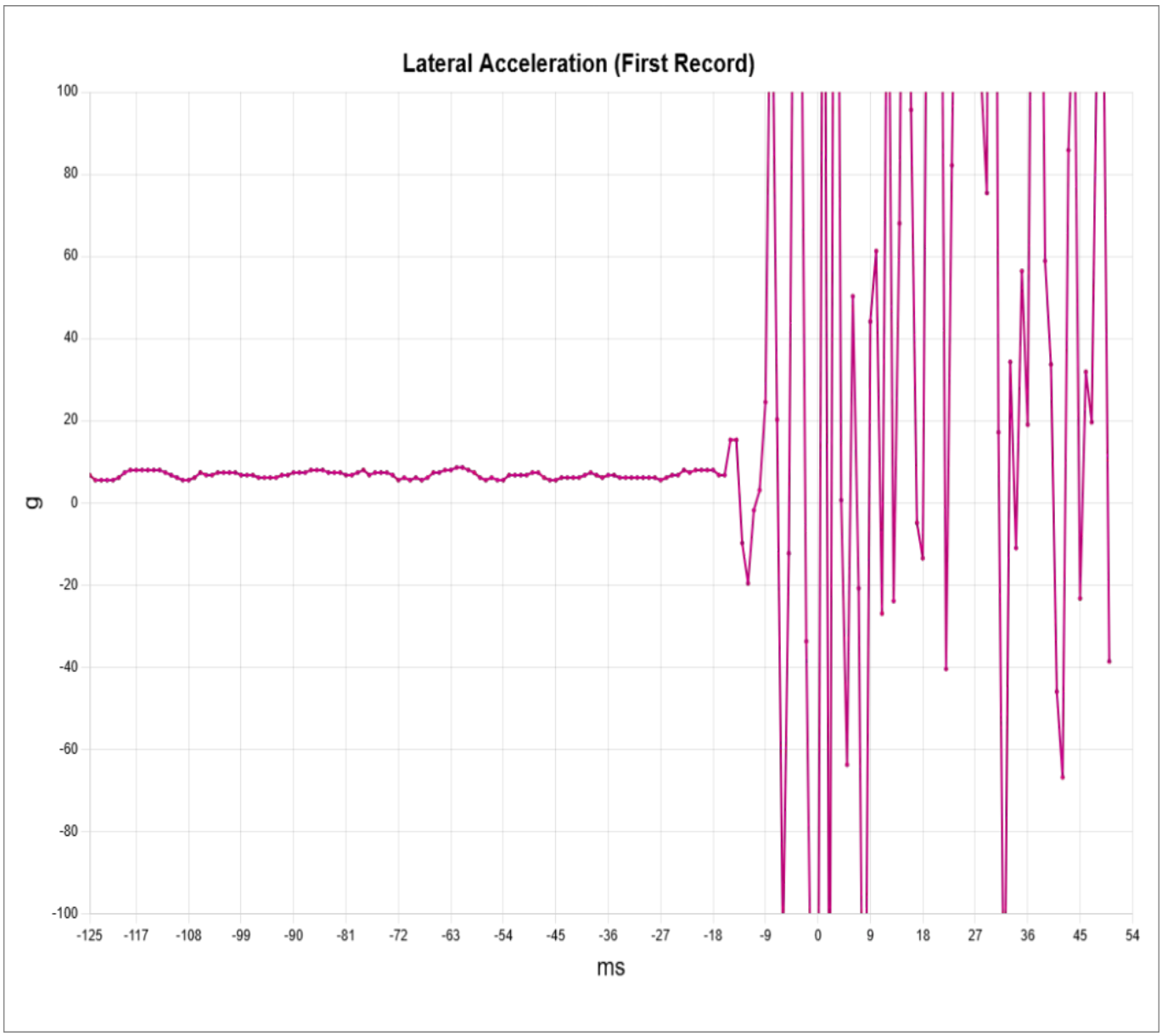
Time (ms)	Longitudinal Acceleration (RCM internal high-G accel) (m/s^2)
-77	-3.06
-76	-3.06
-75	-3.68
-74	-2.45
-73	-3.06
-72	-3.06
-71	-3.06
-70	-3.68
-69	-2.45
-68	-1.84
-67	-2.45
-66	-3.06
-65	-3.06
-64	-1.84
-63	-3.06
-62	-2.45
-61	-4.29
-60	-3.06
-59	-3.68
-58	-3.06
-57	-3.68
-56	-3.06
-55	-2.45
-54	-3.06
-53	-3.06
-52	-2.45
-51	-3.06
-50	-1.84
-49	-3.06
-48	-2.45
-47	-3.06
-46	-2.45
-45	-3.06
-44	-3.06
-43	-3.06
-42	-3.68
-41	-3.06
-40	-3.06
-39	-2.45
-38	-3.06
-37	-2.45
-36	-3.06
-35	-3.06
-34	-3.68
-33	-3.68
-32	-3.68
-31	-3.06
-30	-2.45

Longitudinal Acceleration (First Record)

Time (ms)	Longitudinal Acceleration (RCM internal high-G accel) (m/s^2)
-29	-3.68
-28	-3.06
-27	-4.29
-26	-4.29
-25	-4.29
-24	-3.68
-23	-3.06
-22	-4.9
-21	-3.06
-20	-4.29
-19	-3.68
-18	-3.06
-17	-4.29
-16	-4.29
-15	-17.16
-14	-29.42
-13	-30.03
-12	-26.97
-11	-32.48
-10	6.13
-9	26.36
-8	-190.62
-7	-78.45
-6	110.94
-5	-19.61
-4	-48.42
-3	-144.65
-2	-36.16
-1	-167.33
0	-16.55
1	-126.26
2	-55.78
3	-112.16
4	-148.94
5	-262.33
6	-221.26
7	-233.52
8	-185.71
9	-202.26
10	-283.78
11	-151.39
12	-114
13	-115.23
14	-169.17
15	-343.24
16	-392.27
17	-321.17
18	-321.17

Longitudinal Acceleration (First Record)

Time (ms)	Longitudinal Acceleration (RCM internal high-G accel) (m/s^2)
19	-261.1
20	-353.04
21	-386.14
22	-237.2
23	-174.68
24	-360.4
25	-329.75
26	-224.94
27	-61.29
28	-64.97
29	-113.39
30	91.94
31	7.36
32	-359.78
33	-148.33
34	-232.91
35	-186.94
36	-467.66
37	-274.59
38	-111.55
39	-327.91
40	-300.33
41	-82.13
42	-478.08
43	-269.68
44	-87.65
45	-184.49
46	-277.65
47	-197.97
48	-196.75
49	-202.88
50	-205.94


Lateral Acceleration (First Record)
g
100
80
60
40
20
0
-20
-40
-60
-80
-100
-125 -117 -108 -99 -90 -81 -72 -63 -54 -45 -36 -27 -18 -9 0 9 18 27 36 45 54
ms

Lateral Acceleration (First Record)

Time (ms)	Lateral Acceleration (RCM internal high-G accel) (m/s^2)
-125	6.74
-124	5.52
-123	5.52
-122	5.52
-121	5.52
-120	6.13
-119	7.36
-118	7.97
-117	7.97
-116	7.97
-115	7.97
-114	7.97
-113	7.97
-112	7.36
-111	6.74
-110	6.13
-109	5.52
-108	5.52
-107	6.13
-106	7.36
-105	6.74
-104	6.74
-103	7.36
-102	7.36
-101	7.36
-100	7.36
-99	6.74
-98	6.74
-97	6.74
-96	6.13
-95	6.13
-94	6.13
-93	6.13
-92	6.74
-91	6.74
-90	7.36
-89	7.36
-88	7.36
-87	7.97
-86	7.97
-85	7.97
-84	7.36
-83	7.36
-82	7.36
-81	6.74
-80	6.74
-79	7.36
-78	7.97
-77	6.74

Lateral Acceleration (First Record)

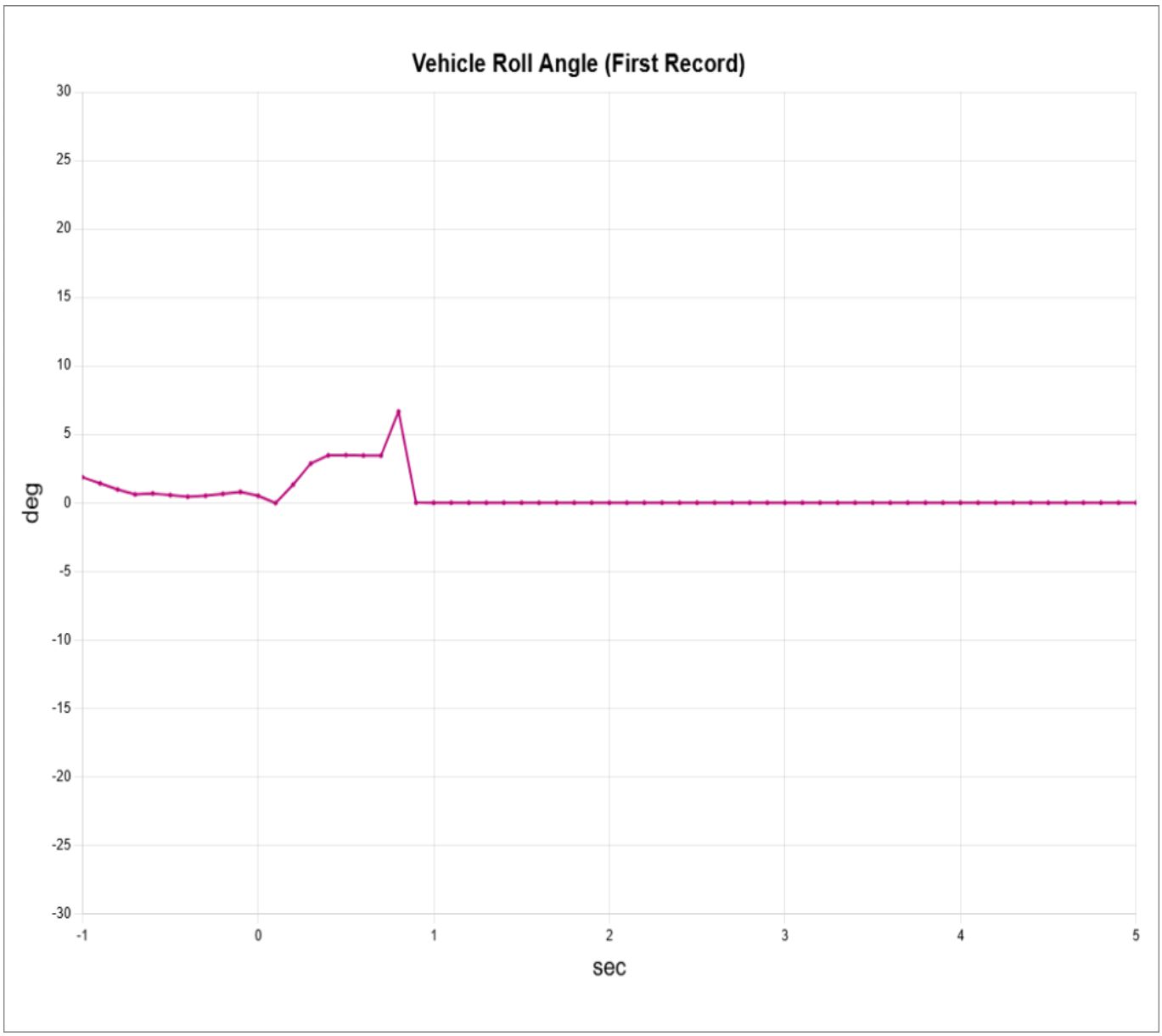
Time (ms)	Lateral Acceleration (RCM internal high-G accel) (m/s^2)
-76	7.36
-75	7.36
-74	7.36
-73	6.74
-72	5.52
-71	6.13
-70	5.52
-69	6.13
-68	5.52
-67	6.13
-66	7.36
-65	7.36
-64	7.97
-63	7.97
-62	8.58
-61	8.58
-60	7.97
-59	7.36
-58	6.13
-57	5.52
-56	6.13
-55	5.52
-54	5.52
-53	6.74
-52	6.74
-51	6.74
-50	6.74
-49	7.36
-48	7.36
-47	6.13
-46	5.52
-45	5.52
-44	6.13
-43	6.13
-42	6.13
-41	6.13
-40	6.74
-39	7.36
-38	6.74
-37	6.13
-36	6.74
-35	6.74
-34	6.13
-33	6.13
-32	6.13
-31	6.13
-30	6.13
-29	6.13
-28	6.13

Lateral Acceleration (First Record)

Time (ms)	Lateral Acceleration (RCM internal high-G accel) (m/s^2)
-27	5.52
-26	6.13
-25	6.74
-24	6.74
-23	7.97
-22	7.36
-21	7.97
-20	7.97
-19	7.97
-18	7.97
-17	6.74
-16	6.74
-15	15.32
-14	15.32
-13	-9.81
-12	-19.61
-11	-1.84
-10	3.06
-9	24.52
-8	150.17
-7	20.23
-6	-108.49
-5	-12.26
-4	188.17
-3	162.42
-2	-33.71
-1	-140.97
0	-156.91
1	221.88
2	-155.07
3	303.4
4	0.61
5	-63.74
6	50.26
7	-20.84
8	-183.88
9	44.13
10	61.29
11	-26.97
12	161.81
13	-23.9
14	68.03
15	234.75
16	95.62
17	-4.9
18	-13.48
19	210.84
20	134.23
21	197.97

Lateral Acceleration (First Record)

Time (ms)	Lateral Acceleration (RCM internal high-G accel) (m/s^2)
22	-40.45
23	82.13
24	185.71
25	115.84
26	136.07
27	196.13
28	104.2
29	75.39
30	395.33
31	17.16
32	-138.52
33	34.32
34	-11.03
35	56.39
36	19
37	207.17
38	215.13
39	58.84
40	33.71
41	-45.97
42	-66.81
43	85.81
44	129.94
45	-23.29
46	31.87
47	19.61
48	123.81
49	123.2
50	-38.61


Vehicle Roll Angle (First Record)
30
25
20
15
10
5
0
-5
-10
-15
-20
-25
-30
deg
-1
0
1
2
3
4
5
sec

Vehicle Roll Angle (First Record)

Time (sec)	Vehicle Roll Angle (deg)
-1.0	1.87
-0.9	1.42
-0.8	0.97
-0.7	0.61
-0.6	0.68
-0.5	0.56
-0.4	0.44
-0.3	0.51
-0.2	0.65
-0.1	0.79
0.0	0.51
0.1	-0.02
0.2	1.33
0.3	2.87
0.4	3.46
0.5	3.48
0.6	3.45
0.7	3.44
0.8	6.67
0.9	0.00
1.0	0.00
1.1	0.00
1.2	0.00
1.3	0.00
1.4	0.00
1.5	0.00
1.6	0.00
1.7	0.00
1.8	0.00
1.9	0.00
2.0	0.00
2.1	0.00
2.2	0.00
2.3	0.00
2.4	0.00
2.5	0.00
2.6	0.00
2.7	0.00
2.8	0.00
2.9	0.00
3.0	0.00
3.1	0.00
3.2	0.00
3.3	0.00
3.4	0.00
3.5	0.00
3.6	0.00
3.7	0.00
3.8	0.00

Vehicle Roll Angle (First Record)

Time (sec)	Vehicle Roll Angle (deg)
3.9	0.00
4.0	0.00
4.1	0.00
4.2	0.00
4.3	0.00
4.4	0.00
4.5	0.00
4.6	0.00
4.7	0.00
4.8	0.00
4.9	0.00
5.0	0.00
5.1	0.00

Hexadecimal Data

Data that the vehicle manufacturer has specified for data retrieval is shown in the hexadecimal data section of the CDR report. The hexadecimal data section of the CDR report may contain data that is not translated by the CDR program. The control module contains additional data that is not retrievable by the CDR system.

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$5B17 - Event Type
12 00 00 00

$F113 - RCM Part Number
4C 42 35 54 2D 31 34 42 33 32 31 2D 50 41 00 00 00 00 00 00 00 00 00 00

$F18C - RCM Serial Number
33 30 30 38 30 30 38 32 33 34 30 34 30 30 30 30

$F188 - RCM Software Part Number
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$F143 - Driver/Center Frontal Restraints Sensor Serial Number
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$F141 - Driver Side Restraint Sensor 1 Serial Number
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$F145 - Driver Side Restraint Sensor 2 Serial Number
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$F144 - Passenger Frontal Restraints Sensor Serial Number
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$F142 - Passenger Side Restraint Sensor 1 Serial Number
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$F146 - Passenger Side Restraints Sensor 2 Serial Number
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$DE00 - Original VIN
31 46 4D 35 4B 38 41 57 35 4C 47 42 36 36 36 36 37

$F190 - Current VIN
31 46 4D 35 4B 38 41 57 35 4C 47 42 36 36 36 36 37 00 00 00 00 00 00 00

$DE01 - RCM Option Content
47 6A EF 33 70 0C E6 89 00 00 00 00

 $5817 - Event Record 1
00 85 0D 00 00 A2 FF FF FF A0 FE FF FF A2 FB FF FF EE F6 FF FF 75 F4 FF FF 01 F0 FF
FF 0E ED FF FF 3A EB FF FF 6D EA FF FF FD E9 FF FF 9D E9 FF FF 92 E9 FF FF 8F E9 FF
FF 82 E9 FF FF C1 E9 FF FF C7 E9 FF FF B8 E9 FF FF A8 E9 FF FF A6 E9 FF FF A3 E9 FF
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7D AE 7E 21 7F 2F 7E F4 7E 37 7F 55 7F 2D 7F 1C 7D 00 00 00 00 00 18 04 18 04 18 04
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FB 00 FE D4 02 80 FF C4 FE 50 FC 14 FF BC FB 94 FF C8 FC 94 FE 24 FD 34 FC 50 F9 5C
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$5818 - Event Record 2


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$EE00 - Decoder DID

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00 00 00 00 00 09 01 43 01 00 19 00 1A 01 06 3F 80 00 00 03 00 00 00 00 00 0A 01 44
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10 9B 21 07 00 00 00 00 00 13 01 C1 01 00 00 00 00 00 02 3F 00 00 00 00 00 00 00 00
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0B 00 03 3A E6 B4 0A 04 00 00 00 00 00 16 03 8A 01 00 00 00 00 00 02 3F 00 00 00 00
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7C 00 00 00 00 00 12 3F 80 00 00 00 00 00 00 00 00 19 03 95 04 00 00 00 00 00 02 40
A0 00 00 00 00 00 00 00 00 1A 03 99 04 00 00 00 00 00 02 40 A0 00 00 00 00 00 00 00
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00 00 02 3C CC CC CD 00 00 00 00 00 00 24 03 D7 02 00 32 00 33 00 02 3D CC CC CD 04
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02 00 32 00 33 00 02 3A 85 A8 00 04 FF FF FF FC 00 27 05 D5 02 00 32 00 33 00 02 3C

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02 00 19 00 1A 00 12 3F 80 00 00 03 00 00 00 00 00 35 07 08 02 00 19 00 1A 00 02 3B
7F 97 24 03 FF FF FF EC 00 36 06 D4 02 00 19 00 1A 00 12 3F 80 00 00 03 00 00 00 00
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7E 00 03 BE 1C E8 53 0B 00 00 00 00 00 4E 0B 1F 06 00 00 00 00 00 02 3F 80 00 00 00
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$F18C - OCS Serial Number
Data Not Requested

$F10A - RCM Calibration Part Number

4C 42 35 54 2D 31 34 43 36 33 35 2D 41 42 00 00 00 00 00 00 00 00 00 00

$F14B - Internal Sensor Serial Number
39 45 46 30 45 43 35 43 34 46 32 42 00 00 00 00

$F14D - Driver Side Restraints Sensor 3 Serial Number
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

$F14E - Passenger Side Restraints Sensor 3 Serial Number
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

$F14F - Driver Side Restraints Sensor 4 Serial Number
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

$F150 - Passenger Side Restraints Sensor 4 Serial Number
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Disclaimer of Liability

The users of the CDR product and reviewers of the CDR reports and exported data shall ensure that data and information supplied is applicable to the vehicle, vehicle's system(s) and the vehicle ECU. Robert Bosch LLC and all its directors, officers, employees and members shall not be liable for damages arising out of or related to incorrect, incomplete or misinterpreted software and/or data. Robert Bosch LLC expressly excludes all liability for incidental, consequential, special or punitive damages arising from or related to the CDR data, CDR software or use thereof.

ANNEX C: EDR REPORT – 2018 TESLA MODEL 3

This Annex contains the report generated by Tesla, Inc. from data imaged from the ACM of the Tesla.

EDR Report

File Information	Value
VIN	[redacted]
Retrieval Date	2025/09/25 17:44:30 (UTC)
Retrieval User Comments	VIN: [redacted] 2018 Tesla 3 Inspection location: Stagecoach Towing, Banning Individuals present: J. Edmunds, ID 19379, and R. Clough, ID A13341 Observed visible restraint deployment(s): Right-front passenger frontal, driver and right-front passenger side seat, driver and right-front passenger knee bolster, and the left and right curtain airbags. Driver seat belt webbing extended, locked, and the pretensioner was detached with the B-pillar. Right-front passenger seat belt webbing extended and locked. Right-, middle-, and left-rear passenger seat belt webbings retracted unlocked. Imaging authorized by search warrant Ignition key or fob available and its location or position at the start of the inspection: Odometer reading/units: 134,701 miles Recommended tire size (sticker): 235/45R18 Drive tire size(s) (actual): 235/40R19 Imaging completed by DLC or direct-to-module access: Additional power-up used: MAIT vehicle invertor Other notes:
Retrieval Program Information	Tesla EDR Retrieval Program v25.36.0
EDR Report Information	Tesla EDR Reporting Service v25.39.0
Report Date	2025/09/25 22:24:32 (GMT)
Number Of Events	1
Time From Event 1 To 2 (seconds)	N/A
Ignition Cycle At Retrieval	18335

Model 3 Data Limitations

General Data Limitations

This report represents data from a Tesla Event Data Recorder (EDR). The report was generated using EDR data that was uploaded to the Tesla EDR Report Service at https://edr.tesla.com. This service is periodically updated using the most current vehicle information available and report users should always ensure that the report was generated by the most recent version of the Report Service.

The EDR is part of the vehicle's Restraints Control Module (RCM). When the EDR senses a crash or crash-like event, it may record a short period of data related to vehicle dynamics and safety systems. This recorded data may assist in understanding the crash or crash-like event. EDR data will only be recorded by a Tesla vehicle if the EDR senses a crash or crash-like event; no data is recorded by the EDR under normal driving conditions.

EDR data should only be used as part of a thorough and competent review of the human, vehicle, and environmental information associated with an event. The data recorded by the EDR has limitations including the number of items recorded, the time period of the recording, the data sampling interval, and the data range and resolution. Additionally, EDR data may be limited by sensor capabilities or the availability of 12 V DC power at the RCM. For these and other potential reasons, the EDR data may not capture an entire event, and the data elements captured may not fully represent all aspects of a given event.

Tesla has made all reasonable efforts to include sufficient information in this report's Data Limitations section to clarify terminology and data elements found in this document to assist the end user in understanding the recorded data. Tesla reserves the right to update, change or modify this information.

Event Data Recorder
: An Event Data Recorder is defined as a device or function in a vehicle that records the vehicle's dynamic time-series data during the time period just prior to a crash event (e.g., vehicle speed vs. time) or during a crash event (e.g., delta–V vs. time), intended for retrieval after the crash event. For the purposes of this definition, the event data do not include audio and video data (49 CFR Part 563).

Data Synchronization
: Pre-crash and crash data are recorded in discrete intervals and may be asynchronous.

Events
: The Model 3 RCM can store up to two events: Event 1 and Event 2. The conditions for triggering the recording of an event differs depending on event type.

Time Zero
: Time Zero, as indicated throughout the event record, is the point where the restraint control algorithm is activated in any sensing direction.

Recording duration
: The end of an event is typically the moment at which the cumulative delta-V within a 20ms time period does not change by more than 0.8 km/h or the moment at which the crash detection algorithm of the RCM resets. Some events may lead to the recording of different duration data as provided for by 49 CFR Part 563.

Deployment events
: A deployment event may be recorded when the RCM commands the deployment of a device (e.g. airbag, pretensioner, or High Voltage (HV) battery disconnect). Airbag deployment events are always locked in memory and are never overwritten. Pretensioner/HV disconnect only deployments may not be locked and may be overwritten.

Non-deployment events
: A non-deployment event may be recorded when the RCM senses a physical occurrence triggering the recording of an event but does not command the deployment of a device (e.g. airbag, pretensioner, High Voltage (HV) battery disconnect). A non-deployment event is recorded if one of the two event memory locations is available (not locked). Non-deployment events are not locked in memory. A non-deployment event is overwritten by another non-deployment event or a deployment event.

Data polarity
: Where applicable, the data in this report follows the polarity conventions found in SAE J1733 and J211. For example, forward longitudinal acceleration and resultant delta-V are positive and left-to-right lateral acceleration and resultant delta-V are positive. Positive roll angle is rotation about the vehicle's longitudinal axis using the right hand rule (clockwise vehicle roll when viewed from the rear of the vehicle). Positive steering wheel angle is clockwise rotation of the steering wheel (steering to the right from straight). Positive yaw rate is when the vehicle (seen from above) is rotating clockwise around the z-axis.

Signal Not Available or Not Applicable (SNA)
: Signal Not Available or Not Applicable (SNA) indicates a data element which is not available due to a fault or network communication disruption with the sensor that supplies the data to the EDR or a data element which does not apply to the specific event or specific vehicle configuration.

Data Element Definitions

Vehicle Identification Number (VIN)

The Vehicle Identification Number (VIN) is stored in the RCM when it is installed at the Tesla Fremont Factory or by Tesla Service. The last 6 digits of the VIN can be anonymized by selecting the “Save without VIN sequence number” option in the Tesla EDR Retrieval Program.

Number Of Events

The Number Of Events represents the total number of events that are stored in the RCM memory. The maximum number of events that can be recorded is two.

Time From Event 1 to 2 (seconds)

The Time From Event 1 to 2 is the amount of time elapsed between the Time Zero of two linked events (if applicable). Linked events must occur within 5 seconds and in the same ignition cycle. Non-linked events will report “N/A” in the Time From Event 1 to 2 value. The value is reported to the nearest fully elapsed 0.1 seconds.

Retrieval Date

The Retrieval Date is the calendar date and time when the data was retrieved from the RCM. This date and time is sourced from the computer that was used to retrieve the data. This is not the date and time of an event.

Retrieval User Comments

The Retrieval User Comments is an open field that can be used by the Tesla EDR Retrieval operator to record text comments at the time of retrieval.

Retrieval Program Information

The Retrieval Program Information is the version number of the Tesla EDR Retrieval Program that was used to retrieve the EDR data from the RCM.

EDR Report Information

The EDR Report Information identifies the version of the Tesla EDR Report Service.

Report Date

Report Date is the calendar date when the online Tesla EDR Report Service was used to generate the report. The source of this data element is the Tesla server.

Ignition Cycle At Retrieval

The Ignition Cycle At Retrieval is the number of times that the RCM had been powered on as reported at the time that the Tesla EDR Retrieval Program was used to retrieve the data from the RCM. The maximum value for ignition cycles is over 4 billion.

Maximum Delta-V, Longitudinal/Lateral (km/h)

The Maximum Delta-V, Longitudinal/Lateral is the maximum magnitude of the recorded delta-V during the event. The value is truncated at whole kilometer per hour resolution. The range for Maximum Delta-V is -100 km/h to +100 km/h. The source of the data is the internal calculation (integration) of the sensor data inside of the RCM.

Time to Maximum Delta-V, Longitudinal/Lateral (ms)

The Time to Maximum Delta-V, Longitudinal/Lateral is the time from Time Zero to the maximum magnitude of the recorded delta-V during the event. The maximum value is 300 ms and the value is reported to the nearest millisecond.

Time to Maximum Delta-V, Resultant (ms)

The Time to Maximum Delta-V, Resultant is the time from Time Zero to the calculated maximum resultant of the longitudinal and lateral delta-V components. The maximum value is 300 ms and the value is reported to the nearest millisecond.

Longitudinal Acceleration Sensor Clipping

The Longitudinal Acceleration Sensor Clipping data element indicates the first data point (in time) at which the maximum range of the longitudinal (x) accelerometer was exceeded. In this case, the actual acceleration (and calculated delta-v) of the vehicle may be more than the reported value. Only the first instance of sensor clipping is reported.

Lateral Acceleration Sensor Clipping

The Lateral Acceleration Sensor Clipping data element indicates the first data point (in time) at which the maximum range of the lateral (y) accelerometer was exceeded. In this case, the actual acceleration (and calculated delta-v) of the vehicle may be more than the reported value. Only the first instance of sensor clipping is reported.

Ignition Cycle At Event

The Ignition Cycle At Event is the number of times that the RCM had been powered on as reported at Time Zero. The maximum value for ignition cycles is over 4 billion.

Ignition Cycle Runtime

Ignition Cycle Runtime is the total cumulated time from when the RCM was powered on to Time Zero for a given event. The maximum value of Ignition Cycle Runtime is over 70 million minutes and the resolution is 0.1 minutes.

Odometer At Event Time Zero

Odometer At Event Time Zero is the value of the vehicle’s lifetime mileage accumulation at Time Zero. The maximum value for this data element is over 1 million kilometers and the resolution is 0.1 kilometers.

Airbag Warning Lamp Status

Airbag Warning Lamp Status indicates the commanded state of the warning lamp as “on” or “off” within approximately the last second before Time Zero.

ABS Warning Indicator Status

ABS Warning Indicator Status indicates the commanded state of the warning lamp as “on” or “off” within approximately the last second before Time Zero.

Vehicle Drive Mode

Vehicle Drive Mode is the status of the vehicle’s powertrain setting within approximately the last second before Time Zero . Possible values for this data element include Park, Reverse, Neutral and Drive.

Driver/Passenger Safety Belt Status

The Driver/Passenger Safety Belt Status is the recorded status of the safety belt at the time of the event. This data element is recorded one second before Time Zero.

Occupant Classification In Front Passenger Seat

The Occupant Classification data element indicates the detected occupant type in the front passenger seat. Values include: Empty, Child, Small Adult, Large Adult, or Not Configured.

Passenger Seat Position

Passenger Seat Position indicates the recorded seat track position of the driver seat. The possible values are Rearward, Forward or Not Configured.

Passenger Airbag Suppression Switch Status

The Passenger Airbag Suppression Switch Status represents the user selected status of the front passenger airbag system at one second prior to Time Zero. This switch is accessible using the vehicle's user interface. A "on" status indicates that the user has manually activated the front passenger airbag system. A "off" status indicates that the user has manually deactivated the front passenger airbag system. A "auto" status indicates that the vehicle has automatically activated or deactivated the front passenger airbag system based on the occupant classification system. In some regions, a "on" status may be reported but the option was not provided to user via the user interface (always "on" systems).

Rear occupant seat status

The Model 3 may record data associated with the second row seat occupancy and seat belt status. Seat occupancy status may not identify small occupants or child seats. The possible values for occupancy status include: Not Occupied or Occupied, or Not Available. The possible values for rear occupant seat belt status are Buckled, Not Buckled, or Not Available.

Driver Airbag Deployment 2nd Stage Disposal

This data element indicates if the driver airbag second stage was commanded to deploy for propellant disposal purposes.

Front Passenger Airbag Deployment 2nd Stage Disposal

This data element indicates if the passenger airbag second stage was commanded to deploy for propellant disposal purposes.

Complete File Recorded

Complete File Recorded indicates whether or not the complete data set available to the EDR was successfully recorded.

Deployment Summary

The Deployment Summary table indicates which of the deployable safety devices (if any) were commanded to deploy and at what time (relative to the event Time Zero). The possible values for the status of each device is “Deployment Commanded” or “Deployment Not Commanded”. The deployment commanded time is to the nearest millisecond.

Time Series Data

All time references are based on the event definition of Time Zero.

Vehicle Speed

Vehicle Speed is calculated using the four wheel speed signals as well as inertial acceleration measurements. This speed will be reported either in kilometers per hour or miles per hour, depending on vehicle configuration. The minimum value for vehicle speed is 0 and the maximum value is greater than 200 km/h (124 mph). The resolution of Vehicle Speed is to the nearest kilometer per hour or mile per hour, depending on vehicle configuration.

Accelerator Pedal (%)

Accelerator Pedal (%) is the percent of full application of the accelerator pedal. The resolution of Accelerator Pedal (%) is to the nearest percent.

Rear Motor Speed (rpm)

Rear Motor Speed is the rate of rotation of the rear drive motor. The maximum value for Rear Motor Speed is 17,900 rpm (revolutions per minute). The resolution of Rear Motor Speed is to the nearest 1 rpm. Positive RPM values indicate that the vehicle motor is rotating negatively about the vehicle's lateral (y) axis, which provides forward motive force.

Service Brake

Service Brake indicates the status of the driver's application of the brake pedal as reported by the brake booster. The possible values for Service Brake are "On" (pedal being applied by driver) and "Off" (pedal not being applied by driver).

Stability Control

Stability Control is the status of the Electronic Stability Control system (ESC). The possible values are "On" (meaning the ESC was enabled but not active), "Off" (meaning the ESC was turned off), and "Engaged" (meaning that the ESC was active).

ABS Activity

ABS Activity is the status of the Anti-lock Braking System (ABS). The possible values are "On" (meaning the ABS was active) and "Off" (meaning the ABS was not active). Active ABS status does not necessarily indicate that the ABS control unit was actively modulating braking at one or more wheels.

Steering Wheel Angle (deg)

Steering Wheel Angle represents the measured rotational angle of the steering wheel. The range of Steering Wheel Angle data is -819 deg to +819 deg. The steering wheel angle value is truncated to the nearest whole degree. Data is recorded for 5 seconds prior to Time Zero every 0.1 seconds.

Lateral/Longitudinal Pre-Crash Acceleration

Lateral and Longitudinal Pre-Crash Acceleration data is the measured physical acceleration of the vehicle as measured at the RCM during the 5 seconds prior to (and including) Time Zero.

Roll/Yaw Rate Pre-Crash Data

Roll and Yaw Rate Pre-Crash data is the measured angular velocity of the RCM for the 5 seconds prior to (and including) Time Zero. The resolution of this data element is to the nearest 0.1 degrees/second and the samples are recorded every 0.1 seconds.

Longitudinal/Lateral Delta-V data

Longitudinal and Lateral Time Series Delta-V Data indicates the change in velocity of the vehicle. The source of the data is the internal calculation (integration) of the sensor data inside of the RCM. The value is truncated at whole kilometer per hour resolution and the data is reported every 10 ms after Time Zero. The range for delta-V data is -100 km/h to +100 km/h.

Longitudinal/Lateral Time Series Acceleration data

Longitudinal and Lateral Time Series Acceleration Data indicates the measured physical acceleration of the vehicle. The source of the data is the accelerometers located inside the RCM. The resolution of acceleration data is 0.8 g and the data is reported every 0.5 ms after Time Zero. The range of acceleration data is -96 g to +96 g.

Normal Time Series Acceleration data

Normal Time Series Acceleration Data indicates the measured physical acceleration of the vehicle in the vertical direction parallel to the pull of gravity. The source of the data is an accelerometer located inside the RCM. The resolution of acceleration data is 0.04 g and the data is reported every 10 ms from 900 ms before Time Zero and 500 ms After Time Zero. The range of acceleration data is -4.8 g to +4.8 g.

Roll Angle

Roll Angle indicates the vehicle roll angle at a specific time before and/or after Time Zero. The source of the data is the internal calculation (integration) of the sensor data inside of the RCM. The recording time for Roll Angle Data is 1 second before and 5 seconds after Time Zero and is sampled every 100 ms. The range of roll angle data is -1,270 deg to +1,270 deg and the resolution of roll angle data is to the nearest 10 deg.

Serial Numbers

Serial numbers are the sensor identification numbers that are stored in the RCM. These values are stored when the RCM is powered up (each ignition cycle).

Hexadecimal Data

The Hexadecimal Data found in this report represents the original, raw data and identifying information retrieved from the RCM accessed to ultimately generate this report. The binary data is represented in hexadecimal format as a matter of convenience. While it represents all the raw data retrieved from the subject RCM not all of that raw data may be used in a given report or application.

Event 1 Data Record

Data Element	Value
Maximum Delta-V, Longitudinal (km/h)	-33
Time To Maximum Delta-V, Longitudinal (ms)	100.0
Maximum Delta-V, Lateral (km/h)	54
Time To Maximum Delta-V, Lateral (ms)	155.0
Time To Maximum Delta-V, Resultant (ms)	155.0
Longitudinal Acceleration Sensor Clipping (ms)	17
Lateral Acceleration Sensor Clipping (ms)	17
Ignition Cycle At Event	18334
Ignition Cycle Runtime (minutes)	8.7
Odometer At Event Time Zero (km)	216779.5
Airbag Warning Lamp Status	Off
ABS Warning Indicator Status	Off
Vehicle Drive Mode	Drive
Driver Safety Belt Status	Buckled
Passenger Safety Belt Status	Buckled
Occupant Classification Status In Front Passenger Seat	Large Adult
Passenger Seat Track Position	Rearward
2nd Row Left Safety Belt Status	Not Buckled
2nd Row Left Seat Occupant	Not Occupied
2nd Row Center Safety Belt Status	Not Buckled
2nd Row Center Seat Occupant	Not Occupied
2nd Row Right Safety Belt Status	Not Buckled
2nd Row Right Seat Occupant	Not Occupied
Passenger Airbag Suppression Switch Status	Not Configured
Driver Airbag Deployment 2nd Stage Disposal	No
Right Front Passenger Airbag Deployment 2nd Stage Disposal	No
Complete File Recorded	Yes

Deployment Summary (Event 1)

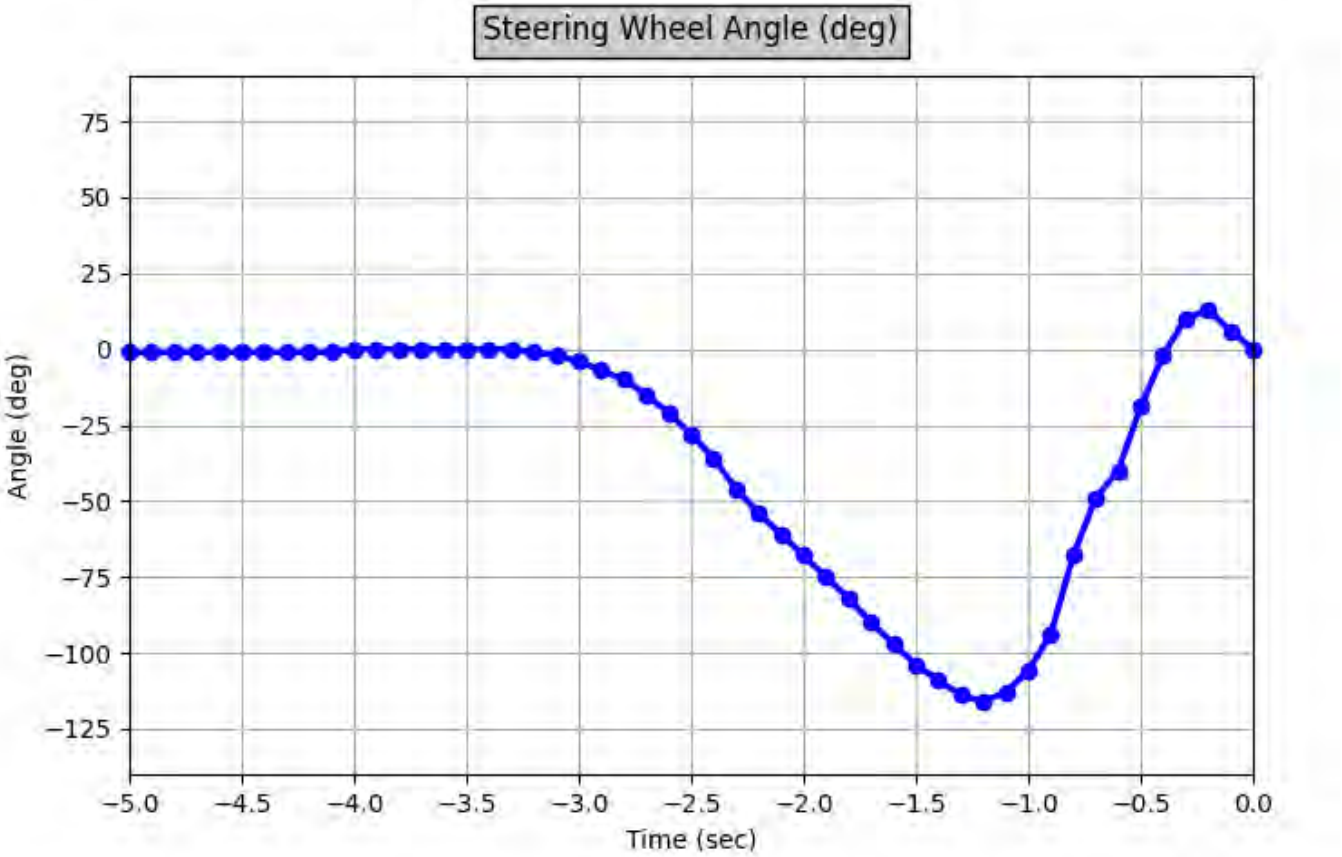
Device	Status	Deployment Command Time (ms)
Driver Front Airbag Stage 1	Deployment Commanded	83
Driver Front Airbag Stage 2	Deployment Commanded	88
Driver Front Airbag Active Vent	Deployment Commanded	268
Driver Knee Airbag	Deployment Commanded	83
Driver Retractor Pretensioner	Deployment Commanded	1
Driver Lap Pretensioner	Deployment Commanded	6
Driver Switchable Load Limiter	Deployment Commanded	113
Driver Side Seat Airbag	Deployment Commanded	1
Passenger Front Airbag Stage 1	Deployment Commanded	83
Passenger Front Airbag Stage 2	Deployment Commanded	88
Passenger Active Vent	Deployment Commanded	268
Passenger Knee Airbag	Deployment Commanded	83
Passenger Retractor Pretensioner	Deployment Commanded	1
Passenger Lap Pretensioner	Deployment Commanded	6
Passenger Switchable Load Limiter	Deployment Commanded	153
Passenger Side Seat Airbag	Deployment Commanded	1
Inflatable Curtain Airbag Left	Deployment Commanded	1
Inflatable Curtain Airbag Right	Deployment Commanded	1
Second Row Retractor Pretensioner Left	Deployment Not Commanded	
Second Row Retractor Pretensioner Right	Deployment Not Commanded	

Event Data (Event 1)

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

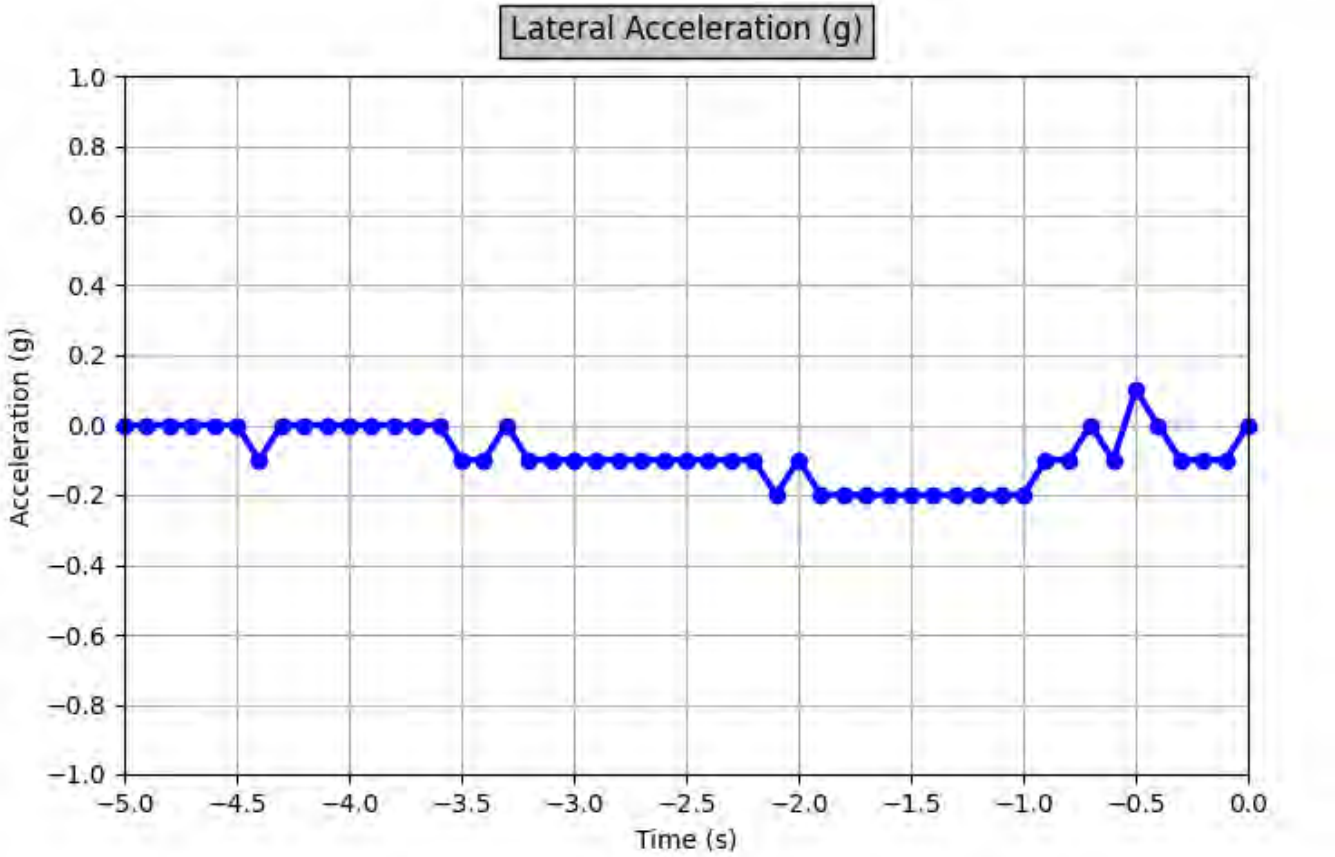
Time (sec)	Vehicle Speed (mi/h)	Accelerator Pedal (%)	Rear Motor Speed (rpm)
-5.0	0.0	17.6	108
-4.8	1.0	19.6	196
-4.6	2.0	23.2	290
-4.4	3.0	23.6	378
-4.2	4.0	23.6	477
-4.0	4.0	24.8	568
-3.8	5.0	25.6	646
-3.6	6.0	26.0	730
-3.4	6.0	26.4	792
-3.2	7.0	26.4	859
-3.0	8.0	26.4	923
-2.8	8.0	26.8	988
-2.6	9.0	27.2	1046
-2.4	9.0	27.6	1081
-2.2	9.0	28.0	1147
-2.0	10.0	28.8	1170
-1.8	10.0	28.8	1240
-1.6	11.0	30.8	1305
-1.4	11.0	30.8	1357
-1.2	12.0	30.8	1387
-1.0	12.0	32.0	1473
-0.8	13.0	0.0	1435
-0.6	11.0	0.0	1017
-0.4	7.0	0.0	417
-0.2	4.0	0.0	374
0.0	0.0	0.0	91

Steering Wheel Angle (Event 1)



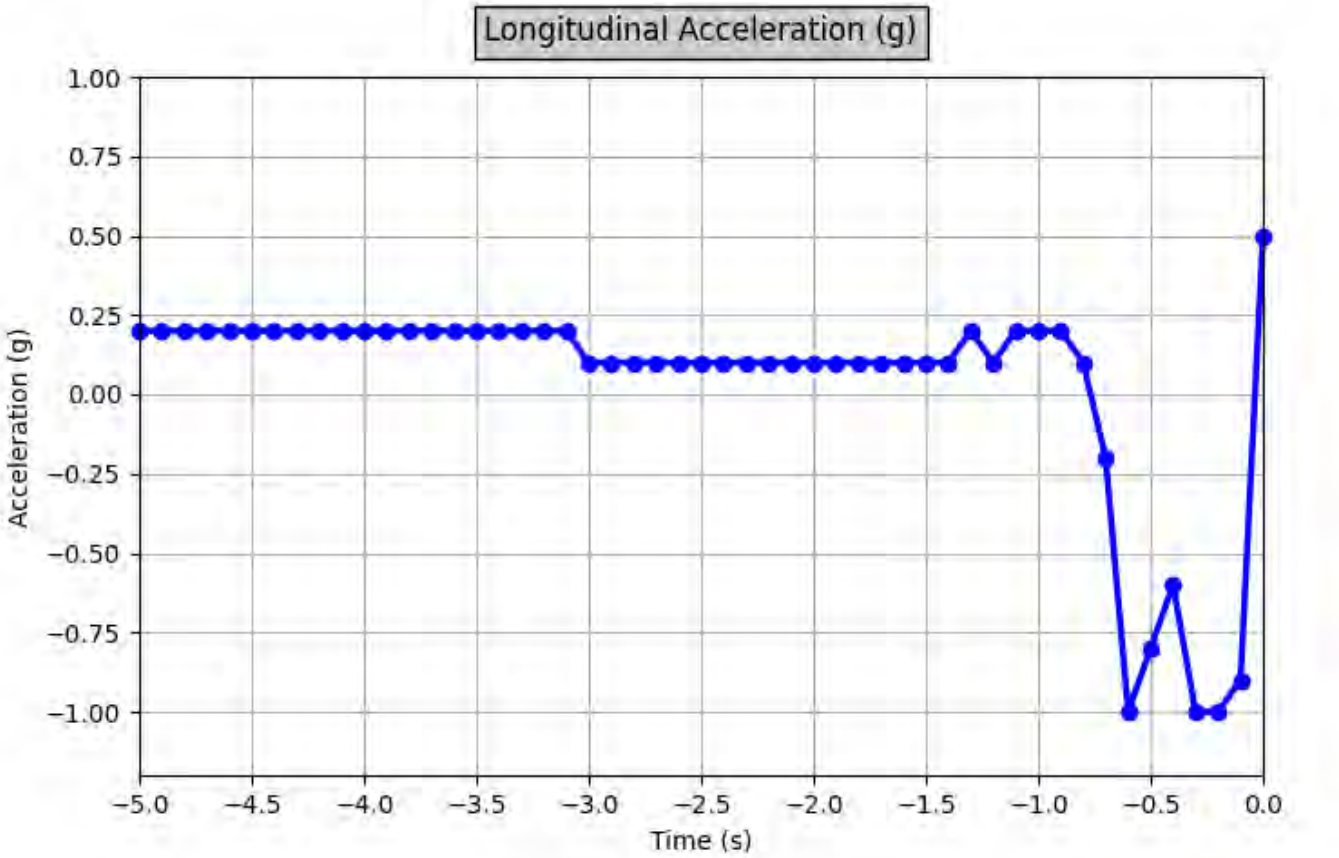
Time (sec)	Angle (deg)	Time (sec)	Angle (deg)	Time (sec)	Angle (deg)
-5.0	-1	-3.3	0	-1.6	-97
-4.9	-1	-3.2	-1	-1.5	-104
-4.8	-1	-3.1	-2	-1.4	-109
-4.7	-1	-3.0	-4	-1.3	-114
-4.6	-1	-2.9	-7	-1.2	-116
-4.5	-1	-2.8	-10	-1.1	-113
-4.4	-1	-2.7	-15	-1.0	-106
-4.3	-1	-2.6	-21	-0.9	-94
-4.2	-1	-2.5	-28	-0.8	-68
-4.1	-1	-2.4	-36	-0.7	-49
-4.0	0	-2.3	-46	-0.6	-40
-3.9	0	-2.2	-54	-0.5	-19
-3.8	0	-2.1	-61	-0.4	-2
-3.7	0	-2.0	-68	-0.3	10
-3.6	0	-1.9	-75	-0.2	13
-3.5	0	-1.8	-82	-0.1	6
-3.4	0	-1.7	-90	0.0	0

Lateral Pre-Crash Acceleration (Event 1)



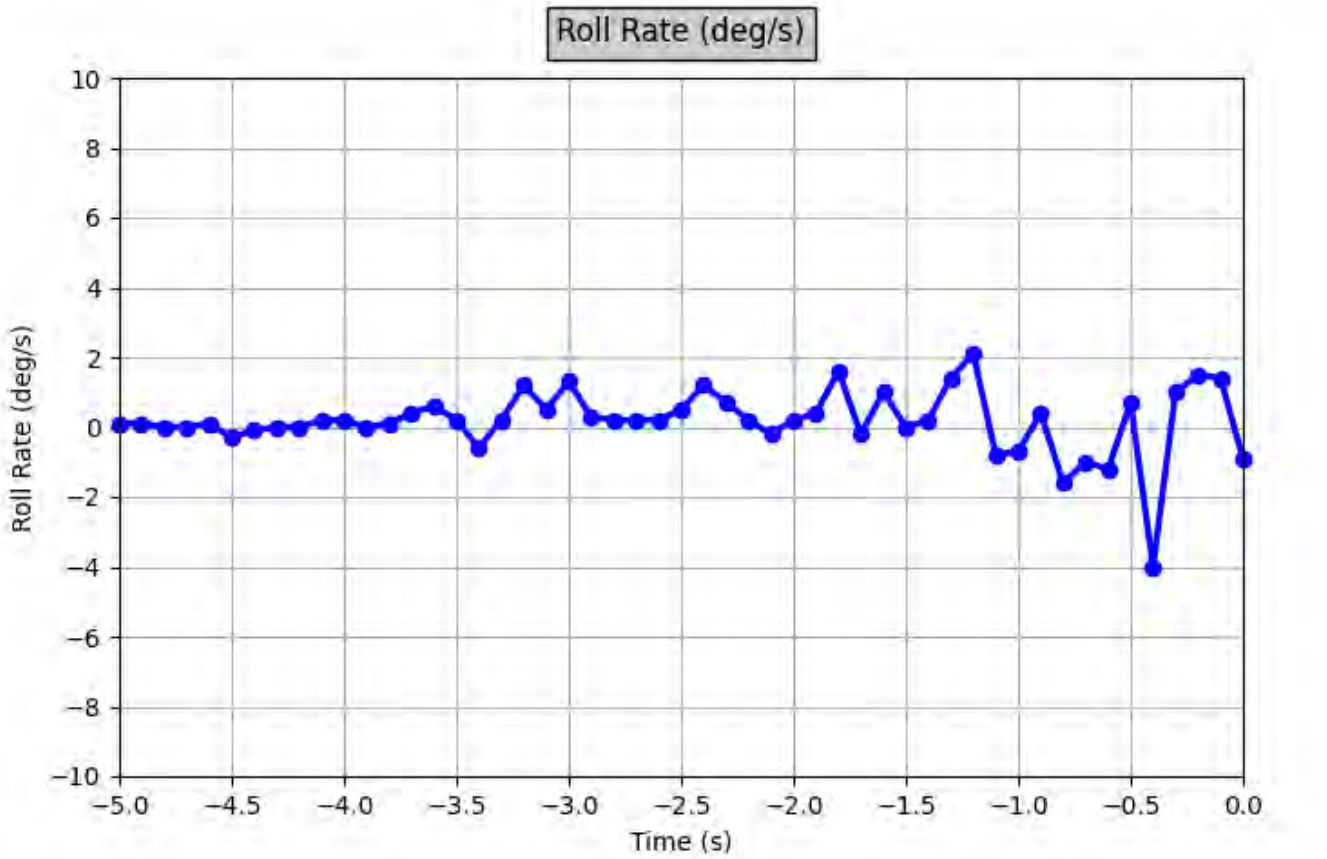
Time (s)	Acceleration (g)	Time (s)	Acceleration (g)	Time (s)	Acceleration (g)
-5.0	0.0	-3.3	0.0	-1.6	-0.2
-4.9	0.0	-3.2	-0.1	-1.5	-0.2
-4.8	0.0	-3.1	-0.1	-1.4	-0.2
-4.7	0.0	-3.0	-0.1	-1.3	-0.2
-4.6	0.0	-2.9	-0.1	-1.2	-0.2
-4.5	0.0	-2.8	-0.1	-1.1	-0.2
-4.4	-0.1	-2.7	-0.1	-1.0	-0.2
-4.3	0.0	-2.6	-0.1	-0.9	-0.1
-4.2	0.0	-2.5	-0.1	-0.8	-0.1
-4.1	0.0	-2.4	-0.1	-0.7	0.0
-4.0	0.0	-2.3	-0.1	-0.6	-0.1
-3.9	0.0	-2.2	-0.1	-0.5	0.1
-3.8	0.0	-2.1	-0.2	-0.4	0.0
-3.7	0.0	-2.0	-0.1	-0.3	-0.1
-3.6	0.0	-1.9	-0.2	-0.2	-0.1
-3.5	-0.1	-1.8	-0.2	-0.1	-0.1
-3.4	-0.1	-1.7	-0.2	0.0	0.0

Longitudinal Pre-Crash Acceleration (Event 1)



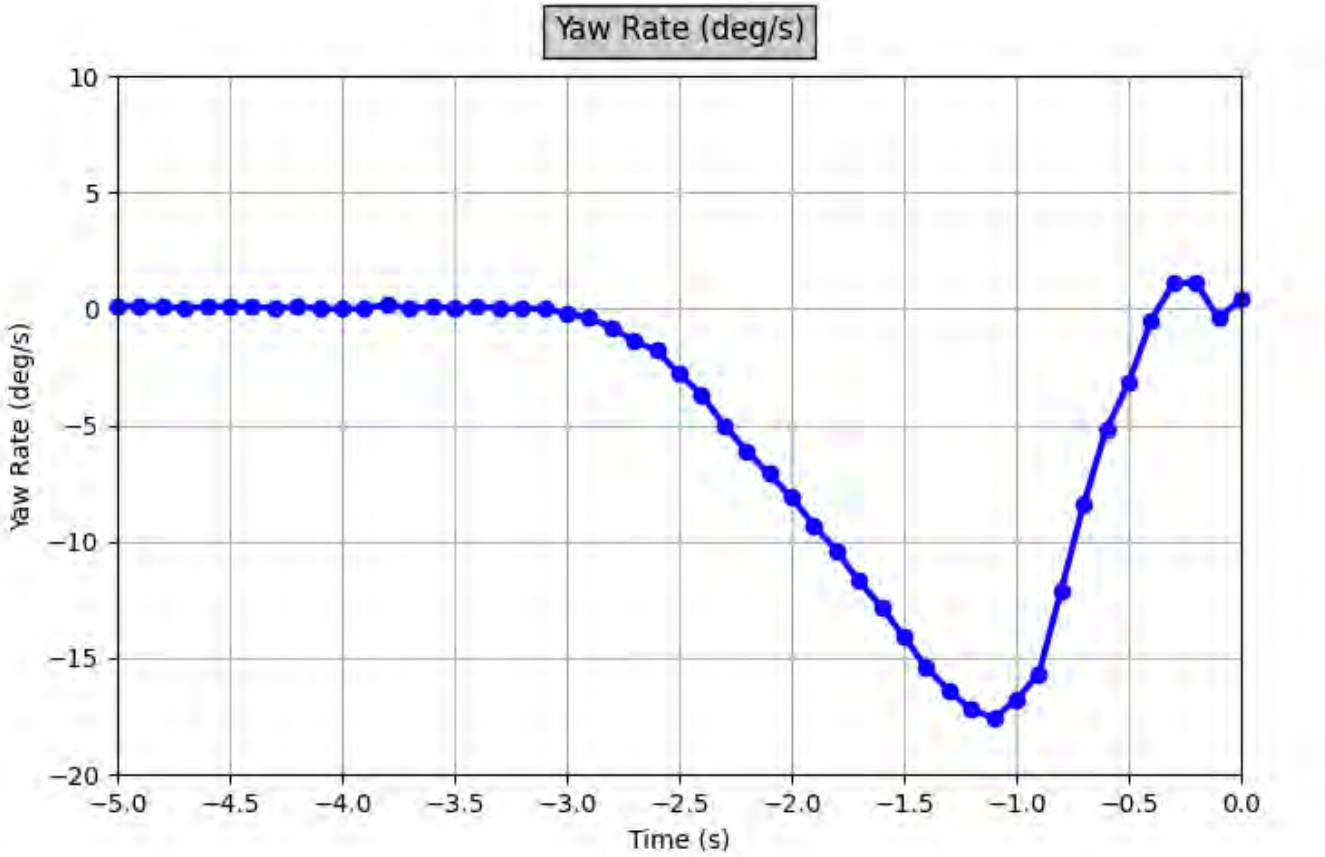
Time (s)	Acceleration (g)	Time (s)	Acceleration (g)	Time (s)	Acceleration (g)
-5.0	0.2	-3.3	0.2	-1.6	0.1
-4.9	0.2	-3.2	0.2	-1.5	0.1
-4.8	0.2	-3.1	0.2	-1.4	0.1
-4.7	0.2	-3.0	0.1	-1.3	0.2
-4.6	0.2	-2.9	0.1	-1.2	0.1
-4.5	0.2	-2.8	0.1	-1.1	0.2
-4.4	0.2	-2.7	0.1	-1.0	0.2
-4.3	0.2	-2.6	0.1	-0.9	0.2
-4.2	0.2	-2.5	0.1	-0.8	0.1
-4.1	0.2	-2.4	0.1	-0.7	-0.2
-4.0	0.2	-2.3	0.1	-0.6	-1.0
-3.9	0.2	-2.2	0.1	-0.5	-0.8
-3.8	0.2	-2.1	0.1	-0.4	-0.6
-3.7	0.2	-2.0	0.1	-0.3	-1.0
-3.6	0.2	-1.9	0.1	-0.2	-1.0
-3.5	0.2	-1.8	0.1	-0.1	-0.9
-3.4	0.2	-1.7	0.1	0.0	0.5

Roll Rate Pre-Crash Data (Event 1)



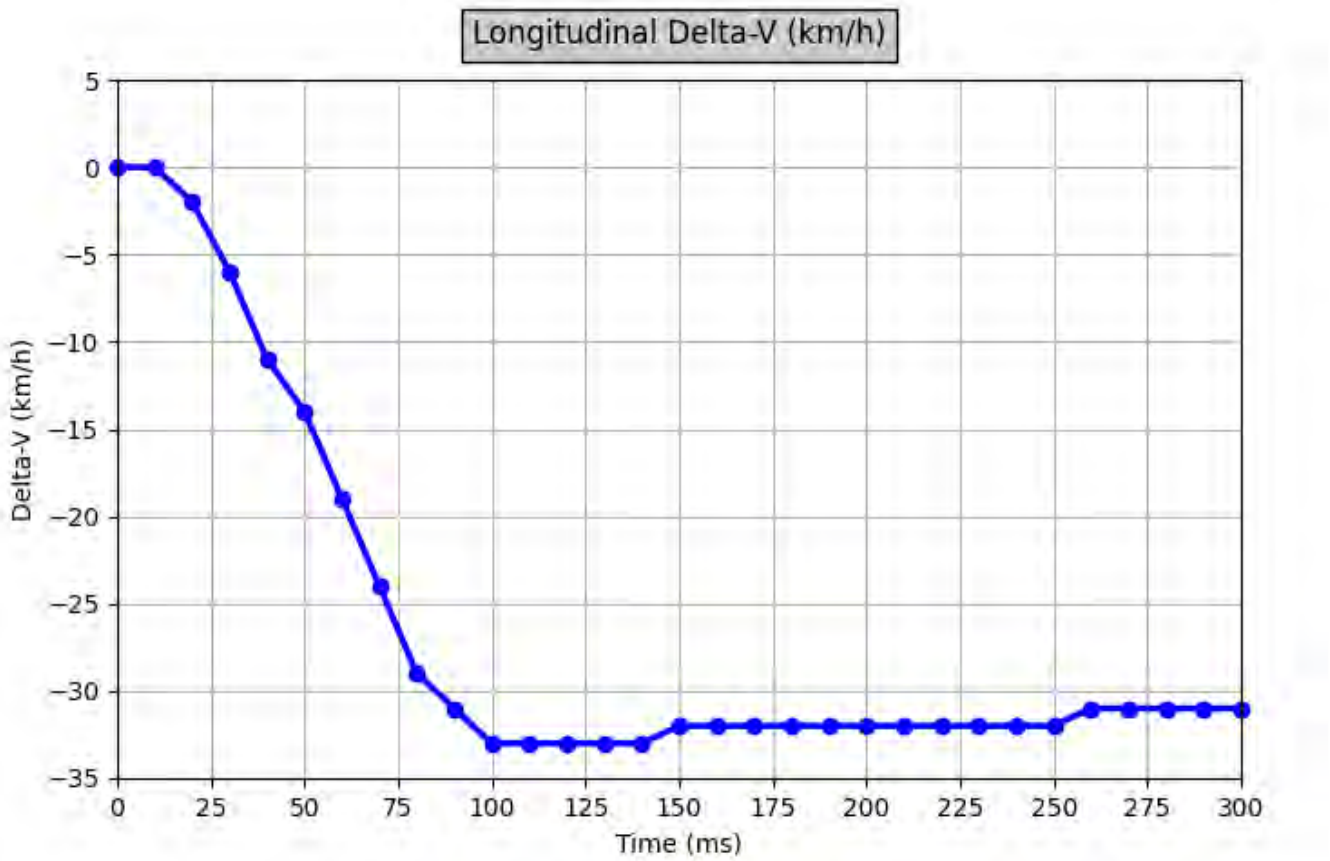
Time (s)	Roll Rate (deg/s)	Time (s)	Roll Rate (deg/s)	Time (s)	Roll Rate (deg/s)
-5.0	0.1	-3.3	0.2	-1.6	1.0
-4.9	0.1	-3.2	1.2	-1.5	0.0
-4.8	0.0	-3.1	0.5	-1.4	0.2
-4.7	0.0	-3.0	1.3	-1.3	1.4
-4.6	0.1	-2.9	0.3	-1.2	2.1
-4.5	-0.3	-2.8	0.2	-1.1	-0.8
-4.4	-0.1	-2.7	0.2	-1.0	-0.7
-4.3	0.0	-2.6	0.2	-0.9	0.4
-4.2	0.0	-2.5	0.5	-0.8	-1.6
-4.1	0.2	-2.4	1.2	-0.7	-1.0
-4.0	0.2	-2.3	0.7	-0.6	-1.2
-3.9	0.0	-2.2	0.2	-0.5	0.7
-3.8	0.1	-2.1	-0.2	-0.4	-4.0
-3.7	0.4	-2.0	0.2	-0.3	1.0
-3.6	0.6	-1.9	0.4	-0.2	1.5
-3.5	0.2	-1.8	1.6	-0.1	1.4
-3.4	-0.6	-1.7	-0.2	0.0	-0.9

Yaw Rate Pre-Crash Data (Event 1)



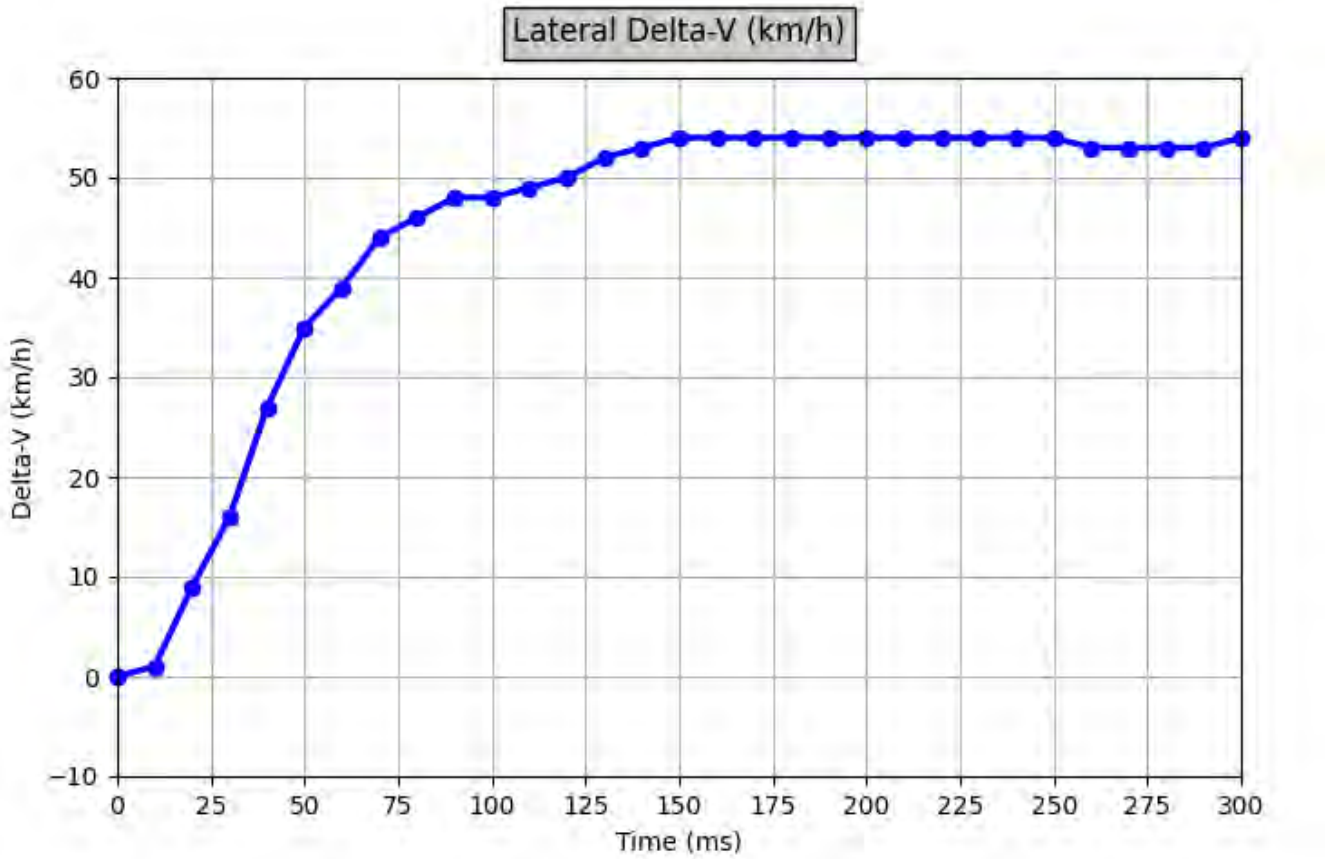
Time (s)	Yaw Rate (deg/s)	Time (s)	Yaw Rate (deg/s)	Time (s)	Yaw Rate (deg/s)
-5.0	0.1	-3.3	0.0	-1.6	-12.8
-4.9	0.1	-3.2	0.0	-1.5	-14.1
-4.8	0.1	-3.1	0.0	-1.4	-15.4
-4.7	0.0	-3.0	-0.2	-1.3	-16.4
-4.6	0.1	-2.9	-0.4	-1.2	-17.2
-4.5	0.1	-2.8	-0.8	-1.1	-17.6
-4.4	0.1	-2.7	-1.4	-1.0	-16.8
-4.3	0.0	-2.6	-1.8	-0.9	-15.7
-4.2	0.1	-2.5	-2.8	-0.8	-12.1
-4.1	0.0	-2.4	-3.7	-0.7	-8.4
-4.0	0.0	-2.3	-5.0	-0.6	-5.2
-3.9	0.0	-2.2	-6.1	-0.5	-3.2
-3.8	0.2	-2.1	-7.1	-0.4	-0.5
-3.7	0.0	-2.0	-8.1	-0.3	1.1
-3.6	0.1	-1.9	-9.3	-0.2	1.1
-3.5	0.0	-1.8	-10.4	-0.1	-0.4
-3.4	0.1	-1.7	-11.7	0.0	0.4

Longitudinal Delta-V (Event 1)



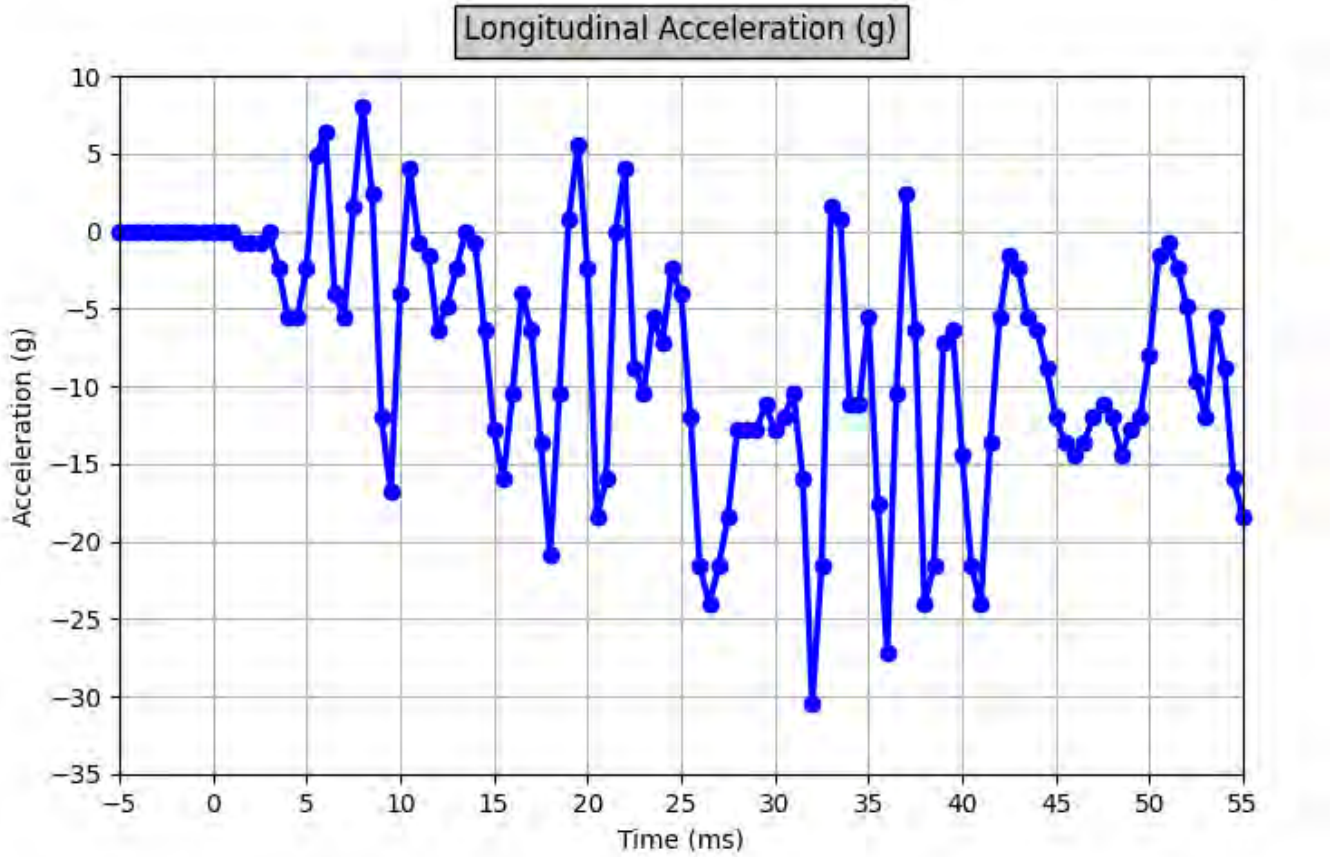
Time (ms)	Delta-V (km/h)	Time (ms)	Delta-V (km/h)	Time (ms)	Delta-V (km/h)
0	0	140	-33	280	-31
10	0	150	-32	290	-31
20	-2	160	-32	300	-31
30	-6	170	-32		
40	-11	180	-32		
50	-14	190	-32		
60	-19	200	-32		
70	-24	210	-32		
80	-29	220	-32		
90	-31	230	-32		
100	-33	240	-32		
110	-33	250	-32		
120	-33	260	-31		
130	-33	270	-31		

Lateral Delta-V (Event 1)



Time (ms)	Delta-V (km/h)	Time (ms)	Delta-V (km/h)	Time (ms)	Delta-V (km/h)
0	0	140	53	280	53
10	1	150	54	290	53
20	9	160	54	300	54
30	16	170	54		
40	27	180	54		
50	35	190	54		
60	39	200	54		
70	44	210	54		
80	46	220	54		
90	48	230	54		
100	48	240	54		
110	49	250	54		
120	50	260	53		
130	52	270	53		

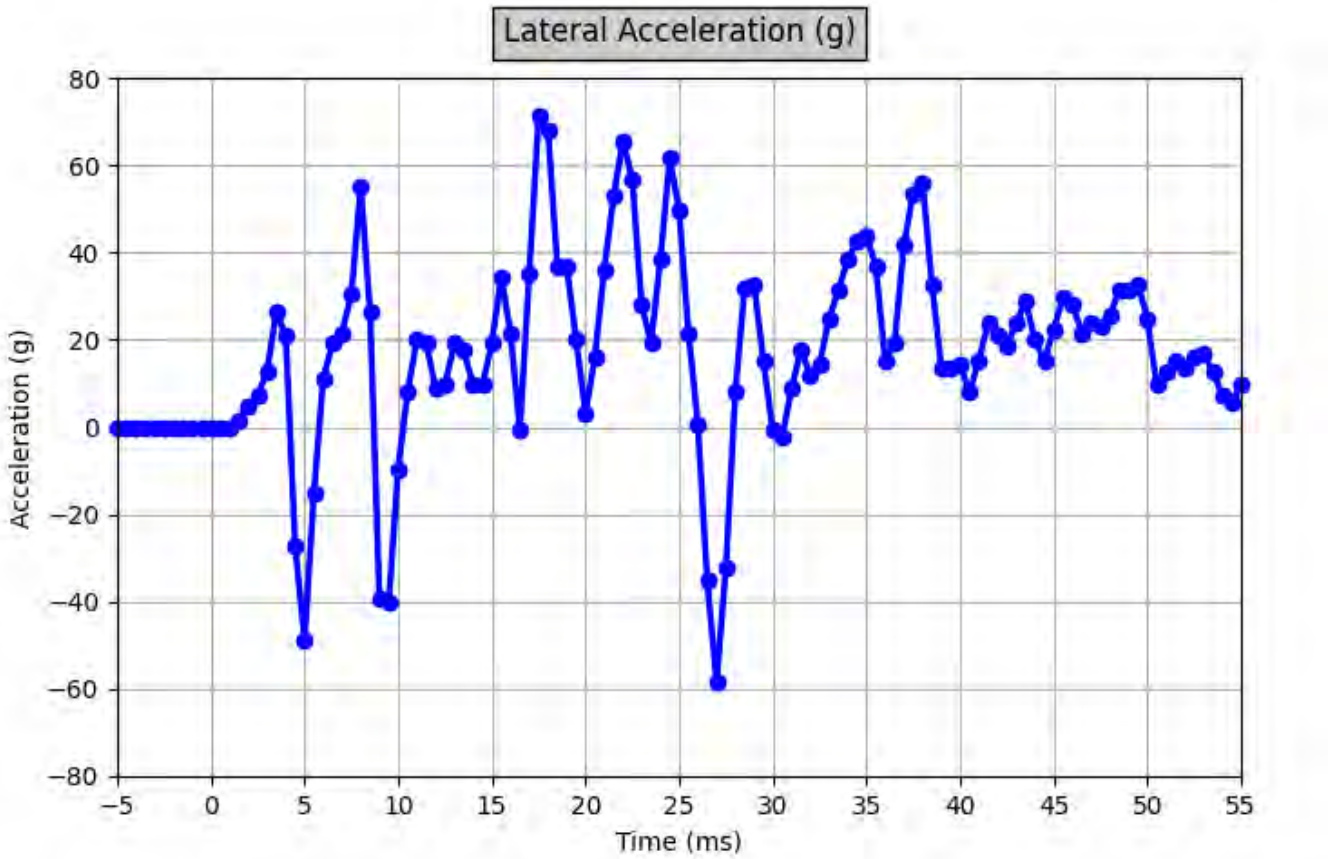
Longitudinal Acceleration (Event 1)



Longitudinal Acceleration Values (Event 1)

Time (ms)	Acceleration (g)	Time (ms)	Acceleration (g)	Time (ms)	Acceleration (g)
-5.0	0.0	15.5	-16.0	36.0	-27.2
-4.5	0.0	16.0	-10.4	36.5	-10.4
-4.0	0.0	16.5	-4.0	37.0	2.4
-3.5	0.0	17.0	-6.4	37.5	-6.4
-3.0	0.0	17.5	-13.6	38.0	-24.0
-2.5	0.0	18.0	-20.8	38.5	-21.6
-2.0	0.0	18.5	-10.4	39.0	-7.2
-1.5	0.0	19.0	0.8	39.5	-6.4
-1.0	0.0	19.5	5.6	40.0	-14.4
-0.5	0.0	20.0	-2.4	40.5	-21.6
0.0	0.0	20.5	-18.4	41.0	-24.0
0.5	0.0	21.0	-16.0	41.5	-13.6
1.0	0.0	21.5	0.0	42.0	-5.6
1.5	-0.8	22.0	4.0	42.5	-1.6
2.0	-0.8	22.5	-8.8	43.0	-2.4
2.5	-0.8	23.0	-10.4	43.5	-5.6
3.0	0.0	23.5	-5.6	44.0	-6.4
3.5	-2.4	24.0	-7.2	44.5	-8.8
4.0	-5.6	24.5	-2.4	45.0	-12.0
4.5	-5.6	25.0	-4.0	45.5	-13.6
5.0	-2.4	25.5	-12.0	46.0	-14.4
5.5	4.8	26.0	-21.6	46.5	-13.6
6.0	6.4	26.5	-24.0	47.0	-12.0
6.5	-4.0	27.0	-21.6	47.5	-11.2
7.0	-5.6	27.5	-18.4	48.0	-12.0
7.5	1.6	28.0	-12.8	48.5	-14.4
8.0	8.0	28.5	-12.8	49.0	-12.8
8.5	2.4	29.0	-12.8	49.5	-12.0
9.0	-12.0	29.5	-11.2	50.0	-8.0
9.5	-16.8	30.0	-12.8	50.5	-1.6
10.0	-4.0	30.5	-12.0	51.0	-0.8
10.5	4.0	31.0	-10.4	51.5	-2.4
11.0	-0.8	31.5	-16.0	52.0	-4.8
11.5	-1.6	32.0	-30.4	52.5	-9.6
12.0	-6.4	32.5	-21.6	53.0	-12.0
12.5	-4.8	33.0	1.6	53.5	-5.6
13.0	-2.4	33.5	0.8	54.0	-8.8
13.5	0.0	34.0	-11.2	54.5	-16.0
14.0	-0.8	34.5	-11.2	55.0	-18.4
14.5	-6.4	35.0	-5.6		
15.0	-12.8	35.5	-17.6		

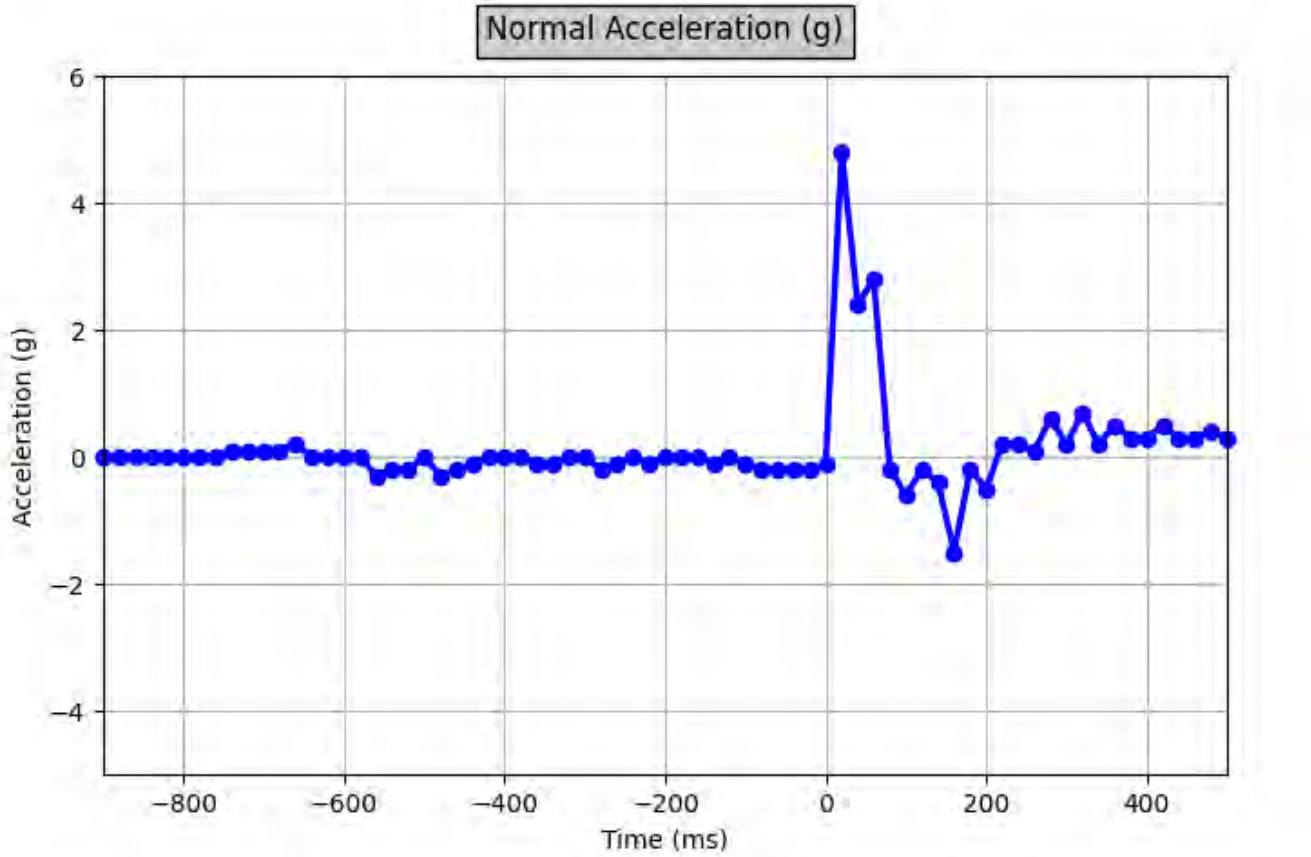
Lateral Acceleration (Event 1)



Lateral Acceleration Values (Event 1)

Time (ms)	Acceleration (g)	Time (ms)	Acceleration (g)	Time (ms)	Acceleration (g)
-5.0	0.0	15.5	34.4	36.0	15.2
-4.5	0.0	16.0	21.6	36.5	19.2
-4.0	0.0	16.5	-0.8	37.0	41.6
-3.5	0.0	17.0	35.2	37.5	53.6
-3.0	0.0	17.5	71.2	38.0	56.0
-2.5	0.0	18.0	68.0	38.5	32.8
-2.0	0.0	18.5	36.8	39.0	13.6
-1.5	0.0	19.0	36.8	39.5	13.6
-1.0	0.0	19.5	20.0	40.0	14.4
-0.5	0.0	20.0	3.2	40.5	8.0
0.0	0.0	20.5	16.0	41.0	15.2
0.5	0.0	21.0	36.0	41.5	24.0
1.0	0.0	21.5	52.8	42.0	20.8
1.5	1.6	22.0	65.6	42.5	18.4
2.0	4.8	22.5	56.8	43.0	24.0
2.5	7.2	23.0	28.0	43.5	28.8
3.0	12.8	23.5	19.2	44.0	20.0
3.5	26.4	24.0	38.4	44.5	15.2
4.0	20.8	24.5	61.6	45.0	22.4
4.5	-27.2	25.0	49.6	45.5	29.6
5.0	-48.8	25.5	21.6	46.0	28.0
5.5	-15.2	26.0	0.8	46.5	21.6
6.0	11.2	26.5	-35.2	47.0	24.0
6.5	19.2	27.0	-58.4	47.5	23.2
7.0	21.6	27.5	-32.0	48.0	25.6
7.5	30.4	28.0	8.0	48.5	31.2
8.0	55.2	28.5	32.0	49.0	31.2
8.5	26.4	29.0	32.8	49.5	32.8
9.0	-39.2	29.5	15.2	50.0	24.8
9.5	-40.0	30.0	-0.8	50.5	9.6
10.0	-9.6	30.5	-2.4	51.0	12.8
10.5	8.0	31.0	8.8	51.5	15.2
11.0	20.0	31.5	17.6	52.0	13.6
11.5	19.2	32.0	12.0	52.5	16.0
12.0	8.8	32.5	14.4	53.0	16.8
12.5	9.6	33.0	24.8	53.5	12.8
13.0	19.2	33.5	31.2	54.0	7.2
13.5	17.6	34.0	38.4	54.5	5.6
14.0	9.6	34.5	42.4	55.0	9.6
14.5	9.6	35.0	44.0		
15.0	19.2	35.5	36.8		

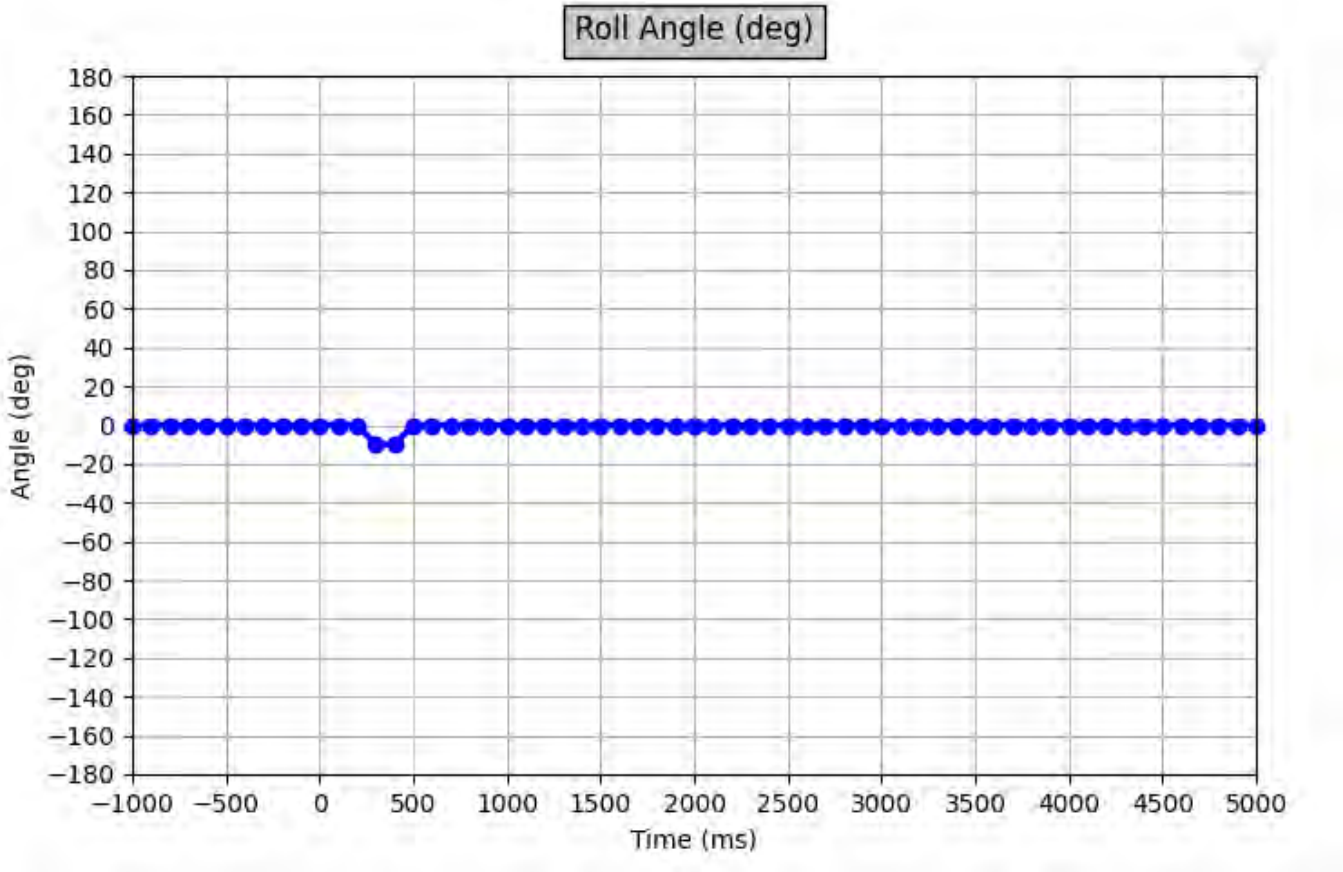
Normal Acceleration (Event 1)



Normal Acceleration Values (Event 1)

Time (ms)	Acceleration (g)	Time (ms)	Acceleration (g)	Time (ms)	Acceleration (g)
-900	0.0	-240	0.0	420	0.5
-880	0.0	-220	-0.1	440	0.3
-860	0.0	-200	0.0	460	0.3
-840	0.0	-180	0.0	480	0.4
-820	0.0	-160	0.0	500	0.3
-800	0.0	-140	-0.1		
-780	0.0	-120	0.0		
-760	0.0	-100	-0.1		
-740	0.1	-80	-0.2		
-720	0.1	-60	-0.2		
-700	0.1	-40	-0.2		
-680	0.1	-20	-0.2		
-660	0.2	0	-0.1		
-640	0.0	20	4.8		
-620	0.0	40	2.4		
-600	0.0	60	2.8		
-580	0.0	80	-0.2		
-560	-0.3	100	-0.6		
-540	-0.2	120	-0.2		
-520	-0.2	140	-0.4		
-500	0.0	160	-1.5		
-480	-0.3	180	-0.2		
-460	-0.2	200	-0.5		
-440	-0.1	220	0.2		
-420	0.0	240	0.2		
-400	0.0	260	0.1		
-380	0.0	280	0.6		
-360	-0.1	300	0.2		
-340	-0.1	320	0.7		
-320	0.0	340	0.2		
-300	0.0	360	0.5		
-280	-0.2	380	0.3		
-260	-0.1	400	0.3		

Roll Angle Data (Event 1)



Roll Angle Values (Event 1)

Time (ms)	Angle (deg)	Time (ms)	Angle (deg)	Time (ms)	Angle (deg)	Time (ms)	Angle (deg)
-1000	0	800	0	2600	0	4400	0
-900	0	900	0	2700	0	4500	0
-800	0	1000	0	2800	0	4600	0
-700	0	1100	0	2900	0	4700	0
-600	0	1200	0	3000	0	4800	0
-500	0	1300	0	3100	0	4900	0
-400	0	1400	0	3200	0	5000	0
-300	0	1500	0	3300	0		
-200	0	1600	0	3400	0		
-100	0	1700	0	3500	0		
0	0	1800	0	3600	0		
100	0	1900	0	3700	0		
200	0	2000	0	3800	0		
300	-10	2100	0	3900	0		
400	-10	2200	0	4000	0		
500	0	2300	0	4100	0		
600	0	2400	0	4200	0		
700	0	2500	0	4300	0		

Serial Numbers

Sensor Number	Sensor Type	Serial Number
1	RCM Serial Number	2A20011308AA
2	Front Left Crash Sensor	B32A2D0F271C
3	Front Middle Crash Sensor	B32A2D0F3436
4	Front Right Crash Sensor	B3295E554C24
5	Left Side Impact Crash Sensor (B-Pillar)	C1291FA2111C
6	Right Side Impact Crash Sensor (B-Pillar)	B529AD615B27
7	Left Side Impact Crash Sensor (C-Pillar)	C5291FA22D0C
8	Right Side Impact Crash Sensor (C-Pillar)	B529AD61062D
9	Front Left Side Door Pressure Sensor	B725A1C6324A
10	Front Right Side Door Pressure Sensor	B725A1C62F17

Hexadecimal Data

0F00

C5 AF C9 61

0F04

55 BF 8B C9

0F07

E6 EC A3 44

5817

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0028	13	F3	00	11	00	11	FF	FF	00	00	00	00	00	00	01	01	01	DF	36	28	3E	3E	00	5A	00	00	47	9E
0056	00	FC	32	12	00	00	02	09	88	66	B3	26	00	00	0D	CB	00	00	47	9F	56	07	87	04	C9	5A	87	04
0084	C0	02	87	04	C0	07	70	04	C4	55	93	04	C0	07	87	26	C1	0F	87	04	CB	5C	87	04	CA	5B	87	04
0112	C0	06	87	04	C0	04	87	04	C0	05	87	04	C5	56	87	04	F0	04	1A	15	FE	5C	87	04	00	00	00	00
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0196	01	0C	00	01	00	06	00	01	00	06	00	99	01	0C	00	53	00	53	FF	FF	FF	FF	00	01	FF	FF	00	01
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0280	00	01	00	01	00	01	00	01	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	00	00	00	00	00	02	02	02
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1316	E5	FF	E5	FF	E5	FF	E4	FF	E3	FF	E3	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
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1540	AA	FE	FE	FE	A8	FE	A1	FE	93	FD	E5	FE	47	FE	00	FD	8C	FD	7E	FD	17	FC	6E	FC	A1	FC	0B	FC
1568	52	FB	AA	FB	9B	FA	97	FB	1E	F9	D1	FA	3E	F9	E6	FA	18	F9	89	FB	12	FC	1E	FD	CC	FF	9A	FD
1596	BD	01	5D	00	E6	FE	1F	FD	78	FD	25	FE	D3	00	0F	00	0E	00	03	FF	FE	00	0C	FF	DC	FF	F6	FF
1624	FE	00	01	00	1F	00	1F	00	00	00	07	00	30	00	4A	00	21	FF	B1	00	14	00	A2	00	45	00	AB	00
1652	2A	00	15	00	15	00	17	00	46	00	A2	00	62	00	14	FF	E7	00	18	00	37	00	D5	FF	E8	00	84	FF
1680	FC	00	1A	00	B9	01	1C	FF	96	FF	A8	00	3A	FF	2C	FF	76	FF	61	00	62	FD	F2	00	80	00	C9	00
1708	B4	FF	8A	FF	F6	FF	F4	FF	EF	00	00	FF	F5	FF	F2	FF	E9	FF	F9	FF	EE	00	02	FF	FB	00	00	FF
1736	E5	00	00	FF	F0	FF	F9	FF	F7	FF	FD	FF	FC	FF	FA	00	24	00	43	00	90	00	ED	01	43	01	E9	02
1764	82	03	6F	04	2D	04	D5	05	8B	06	5E	07	22	07	FF	08	CA	09	AB	0A	89	0B	3B	0B	C6	0C	09	0B
1792	86	0A	C4	08	4A	05	BA	03	93	02	36	00	5E	FF	3D	FF	44	00	3E	FF	B5	1F	F5	1F	F5	1F	F5	1F
1820	F5	1F	F5	1F	F5	1F	F5	1F	F5	1F	F6	1F	F6	1F	F7	1F	F7	1F	F7	1F	F8	1F	F8	1F	F8	1F	F9	1F
1848	F8	1F	F3	1F	EC	1F	D8	1F	BA	1F	93	1F	63	1F	25	1E	DF	1E	8F	1E	31	1D	E3	1D	9C	1D	57	1D
1876	0C	1C	C3	1C	7B	1C	32	1B	EE	1B	B7	1B	8C	1B	72	1B	90	1B	D3	1C	51	1D	58	1E	0E	1E	6C	1F
1904	3F	1F	EC	20	6D	20	8A	20	43	1F	F9	00	78	00	D9	01	41	01	A2	02	10	02	75	02	CB	03	28	03
1932	6D	03	B7	03	FD	04	45	04	86	04	AC	04	F5	05	0F	05	5C	05	A4	05	DE	05	FF	06	5E	06	34	04
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1988	08	00	08	00	09	00	09	00	09	00	0A	00	0A	00	0B	00	0B	00	0C	00	0C	00	0D	00	0B	00	07	00
2016	04	00	00	2C	31	3A	3B	3B	3E	40	41	42	42	42	43	44	45	46	48	48	4D	4D	4D	50	00	00	00	00
2044	00	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F
2072	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	0F	FF	FF	FF
2100	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	63	01	00	00	63
2128	01	00	00	FF	03	00	00	FF	03	00	00	FF	03	00	00	1B	09	00	00	1B	09	00	00	FF	FF	FF	FF	E0
2156	1F	44	00	44	00	44	00	3F	00	3F	00	FF	FF	2A	00	2A	00	18	FC	E8	03	00	00	13	00	B0	00	1B
2184	01	38	00	38	00	38	00	4E	00	4E	00	FF	FF	00	00	00	00	00	00	00	03	00	03	00	00	24	00	24
2212	00	00	00	00	00	18	00	FF	FF	31	00	31	00	1E	01	A6	00	A6	00	A6	00	A6	00	A6	00	FF	FF	38
2240	00	38	00	38	00	4E	00	4E	00	FF	FF	00	00	EB	16	16	16	3B	3B	FF	02	FF	FF	FF	FF	FF	FF	FF
2268	FF	FF	FF	00	00	00	00	00	00	00	00	00	00	00	00	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
2296	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	0F	00	FF	FF	00	00	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	00
2324	00	FF	FF	56	00	FF	FF	99	00	FF	FF	FF	FF	FF	FF	FF	FF	00	00	00	00	00	00	03	00	FF	FF	FF
2352	FF	00	00	02	00	FF	FF	03	00	FF	FF	05	00	00	02	FF	FF	FF	FF	FF	FF	FF	FF	00	00	00	00	01
2380	03	FF	00	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
2408	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
2436	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	54	00	FF	FF	FF	FF	FF	FF	5F	00	FF	FF	0E
2464	08	B6	0F	FF	FF	FF	FF	C5	AF	C9	61	55	BF	8B	C9	00	00	02	FF	FF	FF	FF	FF	7A	05	08	0E	0F
2492	B6	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	01	FF	00	00	00	00	00	00	00	00
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2716	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
2744	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
2772	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
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2856	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
2884	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
2912	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
2940	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
2968	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
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5817 Continued

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3528	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
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3668	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
3696	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
3724	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
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4060	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
4088	00	00	00	00	00	00	00	00	00	00	00	00																

5818

0000	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
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0308	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
0336	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
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0392	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
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0476	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
0504	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
0532	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
0560	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
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0616	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
0644	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
0672	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF

5818 Continued

0700	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
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0756	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
0784	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
0812	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
0840	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
0868	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
0896	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
0924	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
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1008	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
1036	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
1064	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
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1120	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
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1176	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
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1232	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
1260	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
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1344	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
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1988	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
2016	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
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2464	FF	FF	FF	FF	FF	FF	FF	C5	AF	C9	61	55	BF	8B	C9	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
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F014

31 30 39 35 37 35 37 2D 30 30 2D 43 FF FF FF FF FF FF FF FF

F015

32 41 32 30 30 31 31 33 30 38 41 41 31 31

F190

35 59 4A 33 45 31 45 41 39 4A 46 30 31 38 39 39 31

FD00

32 38 35 2E 30 31 34 2E 31 37 36 00 00 00

FD60

00 00 00 00 00 00 00 00 17 8A 02 B3 2A 2D 0F 27 1C

FD61

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FD62

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FD63

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FD64

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FD69

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BB 55 EF 80 37 F2 D7 60 EE 8C 30 CC 57 E7 EE 6D 13 53 18 2F 5C BB CD A3 E0 3D 16 07 D9 E4 05 4B

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