WAYMO

Rodney Aoki, Manager
Department of Motor Vehicles
Licensing and Operations Division
2415 1st Ave. Mail Station S441
Sacramento, CA 95818-2806

January 5, 2017

Re: Correction Pages for Vehicle Disengagement Report

Dear Mr. Aoki:

Enclosed please find a revision to our December 2016 Autonomous Vehicle Disengagement Report. Pages 12 and 13 (part of Appendix B of the report) have been revised to correct the last 4 digits of the Vehicle Identification Numbers (VINs) for some vehicles referenced in the tables of that Appendix.

Please note that these technical corrections do not change any of the data reported in those tables or any other data or information included in our report.

Please let us know if you have any questions regarding these corrections.

Sincerely,

Ron Medford

Ron Medford
Director of Safety

Attachment

Disengagement Report

Report on Autonomous Mode Disengagements
For Waymo Self-Driving Vehicles in California
December 2016

Introduction

On December 13, 2016 we announced that the Google Self-driving Car Project would become its own company, Waymo, which includes Google Auto LLC as a subsidiary. In accordance with regulations issued by the California Department of Motor Vehicles (DMV), Waymo submits this report of disengagements from autonomous mode that have occurred when operating its self-driving cars (SDCs) on public roads in California. In accordance with the DMV rule[1] this report covers the period from December 1, 2015 through November 30, 2016.

As of the end of November, Waymo had operated its self-driving cars in autonomous mode for more than 2.3 million miles. Of those, 635,868 miles occurred on public roads in California during the period covered by this report -- with the vast majority on surface streets in the typical suburban city environment of Mountain View, CA and neighboring communities. This marks a 50 percent increase in total autonomous miles within California compared to the prior reporting period (which was two months longer than this reporting period).

Disengagements are a natural part of the testing process that allow our engineers to expand the software's capabilities and identify areas of improvement. During testing our objective is not to minimize disengagements; rather, it is to gather, while operating safely, as much data as possible to enable us to improve our self-driving system. Therefore, we set disengagement thresholds conservatively, and each is carefully recorded. We have an evaluation process in which we identify disengagements that may have safety significance.

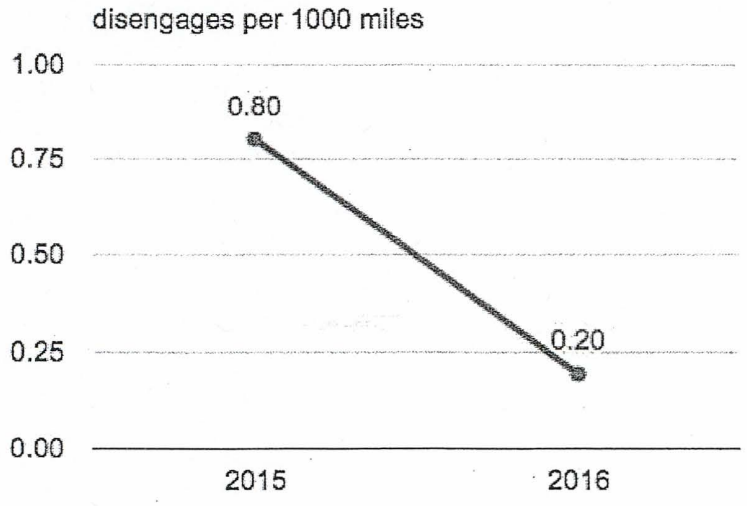
In 2016, we experienced a reduction of 75% in our disengagement rate, from 0.8 per thousand miles of autonomous driving in the previous period to 0.2 disengagements in the current period. Table 1 shows comparative data from the two periods. Figure A illustrates the year-to-year change in disengagement rates.

Table 1: Comparison of Reporting Year Data

Reporting Year	2015	2016
Autonomous miles on public roads in California	424,331	635,868
Reportable disengages	341	124
Disengagements per 1,000 miles	**0.80**	**0.20**

[1] Section 227.46 of Article 3.7 (Autonomous Vehicles) of Title 13, Division 1, Chapter 1, California Code of Regulations.

Figure A: Reportable disengagements
per 1,000 autonomous miles, by reporting year



The DMV rule defines disengagements as deactivations of the autonomous mode in two situations: (1) "when a failure of the autonomous technology is detected," or (2) "when the safe operation of the vehicle requires that the autonomous vehicle test driver disengage the autonomous mode and take immediate manual control of the vehicle." In adopting this definition, the DMV noted: "This clarification is necessary to ensure that manufacturers are not reporting each common or routine disengagement."[2]

As part of testing, our cars switch in and out of autonomous mode many times a day. These disengagements number in the many thousands on an annual basis though the vast majority are considered routine and not related to safety. Safety is our highest priority and Waymo test drivers are trained to take manual control in a multitude of situations, not only when safe operation "requires" that they do so. Our drivers err on the side of caution and take manual control if they have any doubt about the safety of continuing in autonomous mode (for example, due to the behavior of the SDC or any other vehicle, pedestrian, or cyclist nearby), or in situations where other concerns may warrant manual control, such as improving ride comfort or smoothing traffic flow. Similarly, the SDC's computer hands over control to the driver in many situations that do not involve a "failure of the autonomous technology" and do not require an immediate takeover of control by the driver. We explain more in each relevant section below.

Failure of the Autonomous Technology Detected

In events where the software has detected a technology "failure" -- i.e., an issue with the autonomous technology that may affect the safe operation of the vehicle -- the SDC will immediately hand over control to

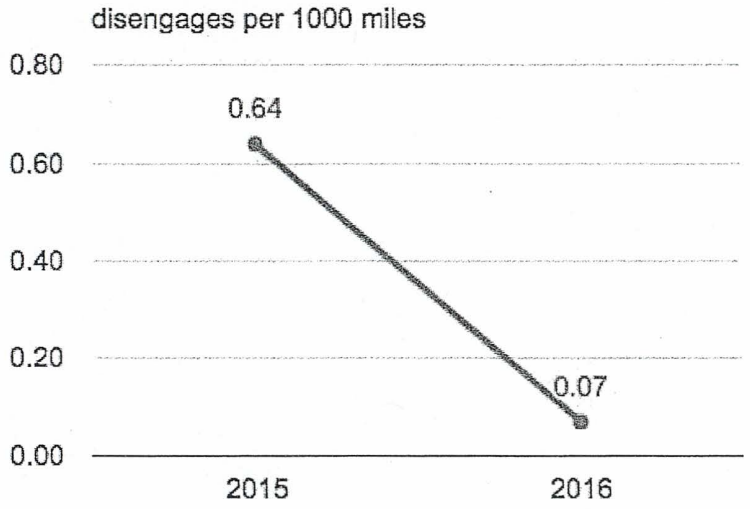
[2] DMV's Final Statement of Reasons at page 2.

the driver; we categorize these as "immediate manual control" disengagements. In these cases, the test driver is given a distinct audio and visual signal, indicating that immediate takeover is required.[3]

"Immediate manual control" disengagement thresholds are set conservatively. Our self-driving system runs thousands of checks on itself every second. Immediate manual control disengagements are triggered primarily when we detect a communication failure between the primary and secondary (back-up) self-driving systems (for example, a broken wire); when we detect anomalies in sensor readings related to our acceleration or position in the world (accelerometers or GPS); or when we detect anomalies in the monitoring of key functions like steering and braking.

The rate of this category of disengagements has declined from 0.64 per thousand miles to 0.07, representing an 89% reduction.

Figure B: Immediate manual control disengagements per 1,000 autonomous miles, by reporting year



Disengagements Where Safe Operation Requires Control by the Driver

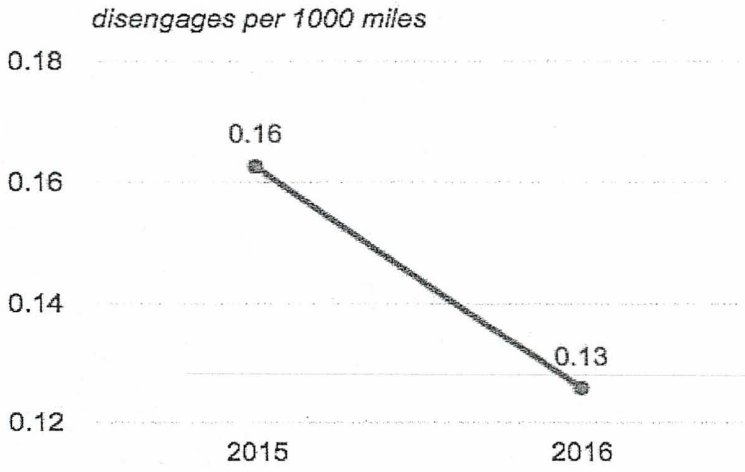
Our test drivers play an important role in refining our technology and ensuring the safe operation of the vehicles while we are in this development phase. They are directed to take control of the vehicle as often as they feel is necessary and for a variety of reasons relating to the comfort of the ride, the safety of the vehicle, or the erratic or unpredictable behavior of other road users.

[3] During this testing phase of the software, our SDC hands over control to test drivers on many other occasions that are not "failures" of the autonomous technology. As we calibrate our software and hardware, we closely monitor its performance and alert our drivers and engineers to any minor anomalies.

Each time a test driver uses his or her discretion and takes manual control of the vehicle, our system automatically records the circumstances leading up to the disengagement from autonomous mode and flags them for review by the software team. This information, along with feedback given by the test driver, is used to evaluate the software for any potential safety issues or areas of improvement, such as making our self-driving car drive more smoothly.

To help evaluate the safety significance of driver disengagements, we employ a powerful simulator program -- developed in-house by our engineers -- that allows the team to "replay" each incident and predict the behavior of the self-driving car (had the driver not taken control of it) as well as the behavior and positions of other road users in the vicinity (such as pedestrians, cyclists, and other vehicles). The simulator can also create thousands of variations on that core event so we can evaluate what would have happened under slightly different circumstances, such as our vehicle and other road users moving at different times, speeds, and angles. Through this process we can determine the events that have safety significance and should receive prompt and thorough attention from our engineers in resolving them. The rate of this category of disengagements declined from 0.16 disengagements per thousand miles to 0.13, representing a 19% reduction.

Figure C: Safe operation disengagements per 1,000 autonomous miles, by reporting year



Our engineers carefully study each event and, to the extent necessary, refine the software to ensure the self-driving car performs safely. A software enhancement is tested against many miles of simulated driving, then tested on the road, and, after careful review and validation, rolled out to the entire fleet.

Summary of All Reportable Disengagements

Table 2 summarizes all disengagements required to be reported to the DMV, i.e., both those where a failure of the autonomous technology was detected and those involving drivers taking control when required for safe operation. Appendix A shows a brief description of each reportable disengagement.

Table 2: All Reportable Disengagements

Month	Number Disengages	Autonomous miles on public roads
Dec 2015	2	38,855.6
Jan 2016	6	38,612.1
Feb 2016	7	19,869.8
Mar 2016	7	27,452.9
Apr 2016	6	38,898.1
May 2016	10	59,489.0
Jun 2016	9	53,475.4
Jul 2016	24	74,345.8
Aug 2016	17	83,704.9
Sep 2016	12	72,765.1
Oct 2016	15	72,064.8
Nov 2016	9	56,334.2
Total	124	635,867.9

Table 3, below, provides the breakdown of disengagements by cause. Note that, while we have used, where applicable, the causes mentioned in the DMV rule (weather conditions, road surface conditions, construction, emergencies, accidents or collisions), those causes were infrequent in our experience. Far more frequent were the additional causes we have labeled as unwanted maneuver, perception discrepancy, software discrepancy, hardware discrepancy, incorrect behavior prediction, or other road users behaving recklessly.

Table 3: Disengagements by Cause

Cause	Dec '15	Jan '16	Feb '16	Mar '16	Apr '16	May '16	Jun '16	Jul '16	Aug '16	Sep '16	Oct '16	Nov '16	Total
disengage for weather conditions during testing	1	0	0	0	0	0	0	0	0	0	0	0	1
disengage for a recklessly behaving road user	0	0	1	0	0	1	2	0	2	1	2	1	10
disengage for unwanted maneuver of the vehicle	0	2	4	0	2	2	2	10	5	1	2	0	30
disengage for a perception discrepancy	0	3	1	1	1	2	2	3	1	2	2	2	20
disengage for incorrect behavior prediction of other traffic participants	0	1	0	0	0	1	0	1	1	0	1	1	6
disengage for a software discrepancy	1	0	1	4	3	4	2	8	8	7	8	5	51
disengage for construction zone during testing	0	0	0	0	0	0	1	0	0	1	0	0	2
disengage for emergency vehicle during testing	0	0	0	2	0	0	0	0	0	0	0	0	2
disengage for debris in the roadway	0	0	0	0	0	0	0	2	0	0	0	0	2
Total	**2**	**6**	**7**	**7**	**6**	**10**	**9**	**24**	**17**	**12**	**15**	**9**	**124**

In its listing of possible disengagement causes, the DMV rule asks each manufacturer to state "whether the disengagement was the result of a planned test of the autonomous vehicle." All the disengagements reported here occurred during planned testing of the SDCs.

Table 4, below, provides information on the location of disengagements covered in this report.

Table 4: Disengagements by Location

Location	Dec '15	Jan '16	Feb '16	Mar '16	Apr '16	May '16	Jun '16	Jul '16	Aug '16	Sep '16	Oct '16	Nov '16	Total
Interstate	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Freeway	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Highway	0	0	1	1	0	4	0	3	1	1	0	1	**12**
Street	2	6	6	6	6	6	9	21	16	11	15	8	**112**
Total	**2**	**6**	**7**	**7**	**6**	**10**	**9**	**24**	**17**	**12**	**15**	**9**	**124**

Miles Driven by Autonomous Vehicles

The majority of miles driven by our test vehicles are in autonomous mode. In the current reporting period, our fleet of SDCs travelled 635,868 miles autonomously and 134,047 miles in manual mode. Appendix B shows the number of miles each of the SDCs was tested in autonomous mode on public roads each month, as required by the DMV rule.

Time Between Technology Failure and Driver Assumption of Control

The DMV rule requires that our report include in our summary of disengagements the "period of time elapsed from when the autonomous vehicle test driver was alerted of the technology failure and the driver assumed manual control of the vehicle." This requirement is relevant only to the "technology failure" category of disengagements when the vehicle hands over control to the driver for immediate action. Appendix A shows this elapsed time for each disengagement where the data are available. In the vast majority of cases, the driver took control in one second or less after the immediate manual control message was received. The average time of all measurable events was 0.90 seconds.

Appendix A
Summary of Each Reportable Disengagement

Date	Location	Type	Time to manual	Cause
Dec 2015	Street	Failure Detection	0.1s	Disengage for a software discrepancy
Dec 2015	Street	Safe Operation	-	Disengage for weather conditions during testing
Jan 2016	Street	Safe Operation	-	Disengage for incorrect behavior prediction of other traffic participants
Jan 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
Jan 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
Jan 2016	Street	Safe Operation	-	Disengage for a perception discrepancy
Jan 2016	Street	Safe Operation	-	Disengage for a perception discrepancy
Jan 2016	Street	Safe Operation	-	Disengage for a perception discrepancy
Feb 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
Feb 2016	Street	Safe Operation	-	Disengage for a recklessly behaving road user
Feb 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
Feb 2016	Street	Safe Operation	-	Disengage for a perception discrepancy
Feb 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
Feb 2016	Highway	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
Feb 2016	Street	Safe Operation	-	Disengage for a software discrepancy
Mar 2016	Street	Safe Operation	-	Disengage for a perception discrepancy
Mar 2016	Street	Safe Operation	-	Disengage for emergency vehicle during testing
Mar 2016	Street	Safe Operation	-	Disengage for emergency vehicle during testing
Mar 2016	Street	Failure Detection	1.7s	Disengage for a software discrepancy
Mar 2016	Street	Failure Detection	1.3s	Disengage for a software discrepancy
Mar 2016	Street	Failure Detection	1.0s	Disengage for a software discrepancy
Mar 2016	Highway	Failure Detection	1.1s	Disengage for a software discrepancy
Apr 2016	Street	Failure Detection	1.2s	Disengage for a software discrepancy
Apr 2016	Street	Failure Detection	1.1s	Disengage for a software discrepancy
Apr 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
Apr 2016	Street	Safe Operation	-	Disengage for a perception discrepancy
Apr 2016	Street	Failure Detection	0.6s	Disengage for a software discrepancy
Apr 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle

May 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
May 2016	Highway	Safe Operation	-	Disengage for incorrect behavior prediction of other traffic participants
May 2016	Street	Safe Operation	-	Disengage for a software discrepancy
May 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
May 2016	Highway	Safe Operation	-	Disengage for a software discrepancy
May 2016	Highway	Safe Operation	-	Disengage for a software discrepancy
May 2016	Street	Safe Operation	-	Disengage for a perception discrepancy
May 2016	Highway	Safe Operation	-	Disengage for a recklessly behaving road user
May 2016	Street	Failure Detection	0.1s	Disengage for a software discrepancy
May 2016	Street	Safe Operation	-	Disengage for a perception discrepancy
Jun 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
Jun 2016	Street	Safe Operation	-	Disengage for a recklessly behaving road user
Jun 2016	Street	Safe Operation	-	Disengage for a perception discrepancy
Jun 2016	Street	Failure Detection	1.6s	Disengage for a software discrepancy
Jun 2016	Street	Safe Operation	-	Disengage for a recklessly behaving road user
Jun 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
Jun 2016	Street	Safe Operation	-	Disengage for a perception discrepancy
Jun 2016	Street	Safe Operation	-	Disengage for construction zone during testing
Jun 2016	Street	Failure Detection	0.6s	Disengage for a software discrepancy
Jul 2016	Highway	Failure Detection	0.1s	Disengage for a software discrepancy
Jul 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
Jul 2016	Street	Safe Operation	-	Disengage for a perception discrepancy
Jul 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
Jul 2016	Street	Safe Operation	-	Disengage for a perception discrepancy
Jul 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
Jul 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
Jul 2016	Street	Failure Detection	1.1s	Disengage for a software discrepancy
Jul 2016	Highway	Safe Operation	-	Disengage for debris in the roadway
Jul 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
Jul 2016	Street	Safe Operation	-	Disengage for a perception discrepancy
Jul 2016	Street	Failure Detection	0.1s	Disengage for a software discrepancy
Jul 2016	Street	Failure Detection	0.9s	Disengage for a software discrepancy
Jul 2016	Street	Safe Operation	-	Disengage for incorrect behavior prediction of other traffic participants

Jul 2016	Street	Failure Detection	2.6s	Disengage for a software discrepancy
Jul 2016	Street	Failure Detection	0.5s	Disengage for a software discrepancy
Jul 2016	Street	Failure Detection	3.6s	Disengage for a software discrepancy
Jul 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
Jul 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
Jul 2016	Highway	Safe Operation	-	Disengage for debris in the roadway
Jul 2016	Street	Failure Detection	1.6s	Disengage for a software discrepancy
Jul 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
Jul 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
Jul 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
Aug 2016	Street	Failure Detection	0.1s	Disengage for a software discrepancy
Aug 2016	Street	Failure Detection	0.2s	Disengage for a software discrepancy
Aug 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
Aug 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
Aug 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
Aug 2016	Street	Failure Detection	0.6s	Disengage for a software discrepancy
Aug 2016	Street	Failure Detection	0.3s	Disengage for a software discrepancy
Aug 2016	Street	Failure Detection	1.4s	Disengage for a software discrepancy
Aug 2016	Street	Safe Operation	-	Disengage for incorrect behavior prediction of other traffic participants
Aug 2016	Highway	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
Aug 2016	Street	Failure Detection	0.1s	Disengage for a software discrepancy
Aug 2016	Street	Failure Detection	1.0s	Disengage for a software discrepancy
Aug 2016	Street	Safe Operation	-	Disengage for a recklessly behaving road user
Aug 2016	Street	Safe Operation	-	Disengage for a recklessly behaving road user
Aug 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
Aug 2016	Street	Safe Operation	-	Disengage for a perception discrepancy
Aug 2016	Street	Safe Operation	-	Disengage for a software discrepancy
Sep 2016	Street	Failure Detection	0.7s	Disengage for a software discrepancy
Sep 2016	Street	Failure Detection	1.6s	Disengage for a software discrepancy
Sep 2016	Street	Failure Detection	0.9s	Disengage for a software discrepancy
Sep 2016	Street	Failure Detection	0.4s	Disengage for a software discrepancy
Sep 2016	Highway	Safe Operation	-	Disengage for construction zone during testing
Sep 2016	Street	Failure Detection	0.2s	Disengage for a software discrepancy

Sep 2016	Street	Failure Detection	1.7s	Disengage for a software discrepancy
Sep 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
Sep 2016	Street	Safe Operation	-	Disengage for a perception discrepancy
Sep 2016	Street	Safe Operation	-	Disengage for a perception discrepancy
Sep 2016	Street	Safe Operation	-	Disengage for a recklessly behaving road user
Sep 2016	Street	Failure Detection	0.1s	Disengage for a software discrepancy
Oct 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
Oct 2016	Street	Safe Operation	-	Disengage for a perception discrepancy
Oct 2016	Street	Safe Operation	-	Disengage for unwanted maneuver of the vehicle
Oct 2016	Street	Safe Operation	-	Disengage for a perception discrepancy
Oct 2016	Street	Failure Detection	0.6s	Disengage for a software discrepancy
Oct 2016	Street	Safe Operation	-	Disengage for a recklessly behaving road user
Oct 2016	Street	Safe Operation	-	Disengage for incorrect behavior prediction of other traffic participants
Oct 2016	Street	Safe Operation	-	Disengage for a recklessly behaving road user
Oct 2016	Street	Failure Detection	1.4s	Disengage for a software discrepancy
Oct 2016	Street	Safe Operation	-	Disengage for a software discrepancy
Oct 2016	Street	Failure Detection	0.6s	Disengage for a software discrepancy
Oct 2016	Street	Failure Detection	0.2s	Disengage for a software discrepancy
Oct 2016	Street	Failure Detection	2.4s	Disengage for a software discrepancy
Oct 2016	Street	Failure Detection	2.0s	Disengage for a software discrepancy
Oct 2016	Street	Failure Detection	0.2s	Disengage for a software discrepancy
Nov 2016	Street	Safe Operation	-	Disengage for a recklessly behaving road user
Nov 2016	Street	Failure Detection	1.2s	Disengage for a software discrepancy
Nov 2016	Street	Safe Operation	-	Disengage for incorrect behavior prediction of other traffic participants
Nov 2016	Street	Safe Operation	-	Disengage for a perception discrepancy
Nov 2016	Street	Safe Operation	-	Disengage for a perception discrepancy
Nov 2016	Street	Failure Detection	0.1s	Disengage for a software discrepancy
Nov 2016	Street	Failure Detection	0.1s	Disengage for a software discrepancy
Nov 2016	Highway	Safe Operation	-	Disengage for a perception discrepancy
Nov 2016	Street	Failure Detection	0.1s	Disengage for a software discrepancy

Appendix B
Autonomous miles on public roads in California for each car and month
(shows last four digits of car's VIN)

Vehicle	****4107	****7036	****0779	****5356	****7943	****9069	****0888	****2177	****5457
Dec 2015	1,342.8	724.1	0.0	1,684.1	2,310.6	1,201.9	1,447.8	1,716.7	1,580.9
Jan 2016	250.2	837.0	0.0	2,887.8	1,180.9	888.6	2,244.0	475.0	1,318.9
Feb 2016	570.1	1,334.7	0.0	880.4	0.0	604.5	0.0	587.3	1,683.1
Mar 2016	1,239.8	1,313.6	0.0	0.0	0.0	2,484.1	0.0	1,538.7	1,005.0
Apr 2016	2,190.1	1,476.4	0.0	32.2	0.0	2,035.7	0.0	285.9	2,278.8
May 2016	2,468.5	2,216.1	1,556.4	2,492.0	1,194.4	2,290.5	1,859.6	1,503.8	1,499.7
Jun 2016	2,056.6	2,133.1	172.8	1,591.8	596.7	2,120.7	1,157.8	1,556.8	1,630.7
Jul 2016	2,085.8	2,554.0	2,198.0	407.9	0.0	2,613.4	1,487.4	1,458.5	449.0
Aug 2016	1,938.9	1,321.5	2,105.0	0.0	0.0	2,442.8	2,639.5	1,818.2	527.5
Sep 2016	1,399.1	3,000.6	2,864.9	0.0	0.0	1,670.2	2,150.6	1,979.5	1,959.1
Oct 2016	0.0	2,213.1	3,567.8	1,571.2	0.0	0.0	3,448.8	3,855.7	1,989.6
Nov 2016	0.0	2,389.3	3,179.3	2,529.5	0.0	0.0	3,804.2	2,378.9	2,668.5
Total	**15,541.9**	**21,513.5**	**15,644.2**	**14,076.9**	**5,282.6**	**18,352.4**	**20,239.8**	**19,155.0**	**18,590.8**

Vehicle	****3028	****2032	****0202	****9817	****5409	****5497	****5048	****5362	****5619
Dec 2015	0.0	0.0	679.1	701.1	2,244.5	0.0	1,282.6	1,451.7	0.0
Jan 2016	0.0	0.0	795.0	2,488.4	2,130.0	0.0	2,914.7	2,527.0	0.0
Feb 2016	0.0	0.0	1,016.7	1,734.9	1,158.8	0.0	1,085.4	895.9	0.0
Mar 2016	0.0	0.0	1,667.3	2,197.5	1,745.1	0.0	0.0	1,911.9	818.1
Apr 2016	1,404.5	2.7	2,445.5	2,038.0	624.3	0.0	733.6	1,445.5	953.8
May 2016	2,050.6	1,955.6	2,461.0	2,003.8	0.0	987.4	952.7	1,690.9	921.1
Jun 2016	1,149.7	1,015.9	1,134.0	0.0	0.0	594.4	0.0	526.4	1,420.2
Jul 2016	634.4	0.0	0.0	0.0	0.0	209.6	1,540.3	312.2	886.5
Aug 2016	0.0	0.0	0.0	0.0	0.0	0.0	1,435.7	0.0	1,462.2
Sep 2016	0.0	0.0	0.0	0.0	0.0	443.6	2,098.7	0.0	0.0
Oct 2016	980.6	0.0	1,465.3	0.0	0.0	0.0	2,268.0	0.0	0.0
Nov 2016	2,611.5	0.0	1,482.7	0.0	0.0	0.0	1,561.0	0.0	0.0
Total	8,831.3	2,974.2	13,146.6	11,163.7	7,902.6	2,235.0	15,872.7	10,761.5	6,461.8

Vehicle	****5019	****4001	****6138	****0059	****5517	****5520	****5521	****5523	****5524
Dec 2015	2,100.5	1,489.9	1,613.2	798.4	0.0	0.0	0.0	0.0	0.0
Jan 2016	1,312.1	1,453.0	350.0	778.2	0.0	0.3	0.0	0.0	0.8
Feb 2016	1,357.2	703.8	363.3	763.4	0.0	3.2	1.6	0.1	1.4
Mar 2016	1,172.4	811.8	975.4	638.8	0.0	2.1	0.7	2.1	2.1
Apr 2016	2,340.8	1,846.6	305.7	924.1	0.0	1.3	1.7	1.5	0.7
May 2016	532.0	829.6	851.5	73.2	0.0	0.2	0.1	2.5	0.5
Jun 2016	58.8	768.9	1,140.4	1,266.0	0.0	0.0	0.5	0.3	0.2
Jul 2016	837.8	568.4	1,638.9	1,312.2	13.1	0.0	0.0	349.0	485.3
Aug 2016	0.0	0.0	1,745.6	2,343.5	271.8	1,105.7	991.2	2,368.6	1,603.9
Sep 2016	0.0	0.0	2,601.4	1,234.8	259.6	1,743.3	611.6	1,484.1	492.4
Oct 2016	0.0	0.0	2,181.5	0.0	1,559.2	1,352.6	1,784.7	1,733.3	1,121.8
Nov 2016	0.0	0.0	849.7	0.0	529.6	369.7	963.1	900.2	854.7
Total	**9,711.6**	**8,472.0**	**14,616.6**	**10,132.7**	**2,633.2**	**4,578.4**	**4,355.2**	**6,841.8**	**4,563.6**

Vehicle	****5526	****5527	****5528	****5529	****5530	****5531	****5532	****5533	****5534
Dec 2015	872.0	1,049.6	384.4	668.0	0.0	0.0	1,496.0	797.7	920.0
Jan 2016	0.0	152.1	80.7	290.9	0.0	0.0	1,141.8	0.0	666.9
Feb 2016	0.0	245.6	18.5	3.3	0.0	0.0	207.1	0.0	14.2
Mar 2016	0.0	739.4	263.4	660.9	0.0	0.0	143.7	0.0	843.1
Apr 2016	0.0	1,118.6	882.0	715.9	0.0	0.0	1,012.5	0.0	444.5
May 2016	630.3	1,582.7	1,535.1	1,393.2	0.0	0.0	628.9	1,848.5	1,783.0
Jun 2016	1,351.3	1,650.1	1913.6	1,563.6	0.0	0.0	639.1	794.5	1476.1
Jul 2016	1,332.6	1,787.6	2,259.5	1,828.3	0.0	0.0	1,919.1	2,108.7	2,179.9
Aug 2016	1,631.6	1,790.0	1,702.9	1,818.8	0.0	9.9	2,393.4	2,273.4	2,410.0
Sep 2016	794.4	1,975.2	640.8	1,674.9	207.9	759.6	1,918.3	1,727.4	1,740.0
Oct 2016	1,020.6	1,580.7	1,306.8	1,288.3	1,852.0	1,533.6	1,401.8	1,542.4	944.2
Nov 2016	1,206.9	1,157.9	1,033.0	1,266.9	1,044.6	689.4	1,381.7	323.2	1,033.6
Total	**8,839.8**	**14,829.5**	**12,020.8**	**13,173.1**	**3,104.4**	**2,992.5**	**14,283.5**	**11,416.0**	**14,455.5**

Vehicle	****5536	****5537	****5538	****5539	****5540	****5541	****5542	****5543	****5544
Dec 2015	1,165.5	580.7	608.4	10.2	530.1	6.1	695.1	203.2	68.8
Jan 2016	1,217.9	1,557.1	1,555.5	1,139.2	126.2	62.6	15.2	0.0	34.4
Feb 2016	347.3	713.0	142.3	421.1	44.3	193.0	259.3	0.0	40.2
Mar 2016	799.1	652.8	400.1	573.5	146.5	735.1	271.7	0.0	489.4
Apr 2016	1,483.6	1,260.0	1,148.1	601.3	1,006.2	1,117.3	994.9	8.9	391.1
May 2016	996.3	240.5	1,131.8	670.6	1,322.4	1,685.1	760.2	1,408.7	1,593.7
Jun 2016	1,444.8	1,164.3	543.6	1,153.9	1,167.5	333.6	1,085.5	1,376.3	1,669.2
Jul 2016	2,060.0	2,259.8	1,601.1	2,050.6	2,240.4	2,115.5	1,760.4	1,785.4	2,007.6
Aug 2016	1,993.1	2,500.7	444.4	2,571.0	2,293.6	2,157.3	904.0	2,342.4	2,081.1
Sep 2016	1,769.3	1,585.4	1,365.6	1,800.6	1,803.2	1,360.6	1,520.6	1,920.1	1,946.5
Oct 2016	1,032.4	1,454.4	1,581.7	1,643.6	1,642.1	1,380.4	1,727.2	814.5	1,503.1
Nov 2016	1,679.8	1,382.7	917.2	1,226.9	916.7	1,011.8	880.5	664.2	1,650.8
Total	**15,989.2**	**15,351.3**	**11,440.0**	**13,862.4**	**13,239.2**	**12,158.3**	**10,874.6**	**10,523.6**	**13,476.0**

Vehicle	****5545	****5546	****5547	****5548	****5549	****5550	****5551	****5552	****5553
Dec 2015	793.4	902.4	186.9	587.4	1,226.7	667.4	0.0	0.0	0.0
Jan 2016	7.0	1,409.8	1,205.9	377.4	1,314.0	568.0	0.0	0.0	0.0
Feb 2016	0.0	20.8	433.4	605.7	701.5	282.7	3.6	0.0	0.0
Mar 2016	134.0	10.9	247.2	410.5	147.3	9.3	0.0	0.0	0.0
Apr 2016	654.3	0.0	347.5	2.7	415.3	665.3	0.0	0.0	0.0
May 2016	839.3	0.0	1,154.7	40.2	765.9	1,293.7	3.9	0.0	716.7
Jun 2016	63.8	0.0	698.7	1,482.2	2,038.9	1,461.3	363.1	0.0	145.6
Jul 2016	1,277.8	1,264.4	1,900.1	1,890.4	2,028.3	1,690.5	1,841.5	0.0	641.2
Aug 2016	2,418.6	2,369.5	2,013.2	1,949.3	1,977.1	2,149.7	1,906.4	259.9	0.0
Sep 2016	1,687.0	803.9	1,468.5	1,907.1	781.0	2,231.2	1,935.3	1,859.7	0.0
Oct 2016	1,759.8	302.4	1,416.3	1,882.7	1,671.8	1,657.6	712.7	1,804.2	0.0
Nov 2016	580.6	778.8	1,106.5	1,002.3	840.6	1,266.6	620.4	405.6	0.0
Total	**10,215.4**	**7,862.8**	**12,178.7**	**12,137.7**	**13,908.2**	**13,943.4**	**7,386.9**	**4,329.3**	**1,503.5**

Vehicle	****5554	****5555	****5556	****5557	****5558	****5559
Dec 2015	0.0	65.9	0.0	0.0	0.0	0.0
Jan 2016	0.0	0.0	325.1	285.4	245.0	2.2
Feb 2016	0.0	0.0	250.2	176.2	0.0	0.5
Mar 2016	0.0	16.1	0.0	0.0	9.6	222.7
Apr 2016	0.0	602.9	0.0	0.0	19.1	636.7
May 2016	0.0	1,453.0	718.5	97.5	0.0	801.1
Jun 2016	0.0	1,257.5	1,082.2	1,228.0	1,682.7	552.1
Jul 2016	0.0	2,025.4	1,859.6	1,755.0	976.7	1,856.6
Aug 2016	0.0	2,239.5	2,374.3	2,189.4	2,104.6	2,314.0
Sep 2016	1,262.2	1,648.9	556.4	669.7	1,475.3	1,975.6
Oct 2016	1,163.7	718.1	689.3	0.0	536.4	1,406.8
Nov 2016	354.9	790.1	745.5	0.0	100.7	1,202.0
Total	**2,780.8**	**10,817.4**	**8,601.2**	**6,401.2**	**7,150.1**	**10,970.3**