



Baidu USA LLC
250 E. Caribbean Drive
Sunnyvale, CA 94089

December 27, 2017

California Department of Motor Vehicles
Occupational Licensing Compliance Section
8243 Demetre Avenue Mail Station L224
Sacramento, CA 95828

RE: Autonomous Vehicle Annual Disengagement Report

To Whom It May Concern,

Enclosed is Baidu USA LLC's first annual disengagement report. We provide this report pursuant to California Code of Regulations Title 13, Article 3.7, Section 227.46.

This report covers from the date of permit issuance, August 31st, 2016, through November 30th, 2017 and addresses (a) total autonomous miles driven on California public roads, (b) total autonomous miles of each vehicle, (c) total number of autonomous mode disengagements, (d) description of facts for disengagements. Our Safety Operators regained control of our vehicles within 1 second when failure of the autonomous driving technology was detected. No emergencies, accidents or collisions occurred during this period.

We test our autonomous driving technology in comprehensive simulation, at closed testing fields, at city streets of Sunnyvale, CA and neighboring communities, and on other public roads in both China and USA. The contents of this report are derived from our California based autonomous vehicle program and does not include information of testing autonomous vehicles on other public roads outside of California.

On April 18th, 2017, Baidu announced Project Apollo, an open autonomous driving platform. We officially launched Apollo 1.0 on July 5th, 2017, providing the autonomous driving technologies for restricted areas. The Apollo 1.5 release ensued on September 20th, 2017, providing fixed lane autonomous driving technology. In preparation for these releases, our Vehicle Operation teams vigorously tested within a private closed course, limiting the amount of reportable autonomous miles.

Please contact me if you have any questions regarding this report.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jingao Wang".

Jingao Wang
Senior Director, Baidu USA LLC
(669) 224-6400



I. Autonomous Vehicle Fleet

Vehicle Name	Vehicle Model	License Plate
MKZ 6	2016 Lincoln MKZ Hybrid	7SYS836
MKZ 7	2016 Lincoln MKZ Hybrid	7SYS837
MKZ 8	2017 Lincoln MKZ Hybrid	7VQS822
MKZ 9	2017 Lincoln MKZ Hybrid	7VQS821

II. Disengagement Summary:

Month	Autonomous Miles	Qualifying Disengagements
October 2016	7.7	1
November 2016	14.9	4
December 2016	14.3	1
January 2017	26	3
February 2017	5.1	2
March 2017	132.63	7
April 2017	70.4	2
May 2017	151.57	7
June 2017	122.15	9
July 2017	31.91	3
August 2017	5.9	0
September 2017	27.4	0
October 2017	38	0
November 2017	1323.78	9
Totals	1,971.74	48



III. Autonomous Miles and Disengagements per Vehicle

	MKZ 6	
Month	Autonomous Miles	Qualifying Disengagements
October 2016	7.7	1
November 2016	14.9	4
December 2016	14.3	1
January 2017	26	3
February 2017	2.5	1
March 2017	117.73	6
April 2017	37.1	2
May 2017	78.18	1
June 2017	46.08	4
July 2017	14.24	3
August 2017	5.9	0
September 2017	24.2	0
October 2017	0	0
November 2017	6.5	0
Totals	395.33	26

	MKZ 7	
Month	Autonomous Miles	Qualifying Disengagements
March 2017	1.7	0
April 2017	19.9	1
May 2017	53.93	4
June 2017	76.07	5
July 2017	17.67	0
August 2017	0	0
September 2017	3.2	0
October 2017	38	0
November 2017	1267.2	9
Totals	1477.67	19



	MKZ 8	
Month	Autonomous Miles	Qualifying Disengagements
November 2017	43.18	0
Totals	43.18	0

	MKZ 9	
Month	Autonomous Miles	Qualifying Disengagements
February 2017	2.6	1
March 2017	13.2	1
April 2017	13.04	0
May 2017	19.36	2
November 2017	6.9	0
Totals	55.1	4

IV. Disengagements by Cause

Cause of Disengagement	Oct '16	Nov '16	Dec '16	Jan '17	Feb '17	Mar '17	Apr '17	May '17	Jun '17	Jul '17	Aug '17	Sep '17	Oct '17	Nov '17
System Fault		4			1									
Control Discrepancy	1	0		1										
Perception Discrepancy			1	1		5	1	5	4	1				5
Unwanted Maneuver		0		1	1	1			2					4
Planning Discrepancy						1	1	2	3					
Map Discrepancy							1			1				
Localization Discrepancy		0								1				
Total	1	4	1	3	2	7	3	7	9	3	0	0	0	9



V. Disengagements by Month

	October 2016
Total Autonomous Miles	7.7
Qualifying Disengagements	1
Date	Disengagement Reason
10/16/2016	Disengage for control discrepancy

	November 2016
Total Autonomous Miles	14.9
Qualifying Disengagements	4
Disengagement Information	
Date	Disengagement Reason
11/04/2016	System Fault
11/10/2016	System Fault
11/17/2016	System Fault
11/18/2016	System Fault

	December 2016
Total Autonomous Miles	14.3
Qualifying Disengagements	1
Disengagement Information	
Date	Disengagement Reason
12/07/2016	Disengage for perception discrepancy

	January 2017
Total Autonomous Miles	26
Qualifying Disengagements	3
Disengagement Information	
Date	Disengagement Reason
01/11/2017	Disengage for control discrepancy
01/13/2017	Disengage for perception discrepancy
01/27/2017	Disengage for unwanted maneuver



	February 2017
Total Autonomous Miles	5.1
Qualifying Disengagements	2
Disengagement Information	
Date	Disengagement Reason
02/12/2017	System Fault
02/22/2017	Disengage for unwanted maneuver

	March 2017
Total Autonomous Miles	132.63
Qualifying Disengagements	7
Disengagement Information	
Date	Disengagement Reason
03/03/2017	Disengage for perception discrepancy
03/13/2017	Disengage for unwanted maneuver
03/14/2017	Disengage for perception discrepancy
03/14/2017	Disengage for planning discrepancy
03/15/2017	Disengage for perception discrepancy
03/15/2017	Disengage for perception discrepancy
03/30/2017	Disengage for perception discrepancy

	April 2017
Total Autonomous Miles	70.04
Qualifying Disengagements	3
Disengagement Information	
Date	Disengagement Reason
04/05/2017	Disengage for map discrepancy
04/10/2017	Disengage for perception discrepancy
04/27/2017	Disengage for planning discrepancy



	May 2017
Total Autonomous Miles	151.47
Qualifying Disengagements	7
Disengagement Information	
Date	Disengagement Reason
05/10/2017	Disengage for perception discrepancy
05/10/2017	Disengage for perception discrepancy
05/19/2017	Disengage for perception discrepancy
05/26/2018	Disengage for planning discrepancy
05/26/2019	Disengage for planning discrepancy
05/31/2020	Disengage for perception discrepancy
05/31/2021	Disengage for perception discrepancy

	June 2017
Total Autonomous Miles	122.15
Qualifying Disengagements	9
Disengagement Information	
Date	Disengagement Reason
06/01/2017	Disengage for perception discrepancy
06/02/2017	Disengage for perception discrepancy
06/06/2017	Disengage for planning discrepancy
06/08/2017	Disengage for perception discrepancy
06/13/2017	Disengage for unwanted maneuver
06/21/2017	Disengage for perception discrepancy
06/21/2017	Disengage for planning discrepancy
06/28/2017	Disengage for planning discrepancy
06/28/2017	Disengage for unwanted maneuver

	July 2017
Total Autonomous Miles	31.91
Qualifying Disengagements	3
Disengagement Information	
Date	Disengagement Reason
07/06/2017	Disengage for map discrepancy
07/06/2017	Disengage for perception discrepancy
07/06/2017	Disengage for localization discrepancy



	August 2017
Total Autonomous Miles	5.9
Qualifying Disengagements	0

	September 2017
Total Autonomous Miles	27.4
Qualifying Disengagements	0

	October 2017
Total Autonomous Miles	38
Qualifying Disengagements	0

	November 2017
Total Autonomous Miles	1323.78
Qualifying Disengagements	9
Disengagement Information	
Date	Disengagement Reason
11/10/2017	Disengage for perception discrepancy
11/10/2017	Disengage for perception discrepancy
11/13/2017	Disengage for perception discrepancy
11/14/2017	Disengage for unwanted maneuver
11/20/2017	Disengage for unwanted maneuver
11/21/2017	Disengage for unwanted maneuver
11/22/2017	Disengage for perception discrepancy
11/28/2017	Disengage for perception discrepancy
11/30/2017	Disengage for unwanted maneuver