

Certification Summary Information Report

Manufacturer	Tesla, Inc.	Manufacturer Code	TSL
Test Group	LTSLV00.0L2S	Evaporative/Refueling Family	--
Certificate Number	LTSLV00.0L2S-001	CARB Executive Order #	--
Certificate Issue Date	09/30/2019	Certificate Revision Date	--
Certificate Effective Date	09/30/2019	Conditional Certificate	No
CSI Revision #	--	CSI Submission/Revision Date	08/16/2019 01:23:21 PM
Model Year	2020		

Test Group Information

CSI Type	Update for Correction	Running Change Reference Number	--
GHG Exempt Status	Not Exempt		

Drive Sources and Fuel(s)

Drive Source #1: Electric Motor

Fuel	Basic Fuel Metering System	Lean Burn Strategy Indicator
Electricity	--	--

Hybrid Indicator	No		
Multiple Fuel Storage	--	Rechargeable Energy Storage System Indicator	Yes
Multiple Fuel Combustion	--	Off-board Charge Capable Indicator	Yes
Fuel Cell Indicator	No	EPA Vehicle Class	LDV
Federal Clean Fuel Vehicle	Yes	Federal Clean Fuel Vehicle Standard	ZEV
Federal Clean Fuel Vehicle ILEV	Yes	California Partial Zero Emissions Vehicle Indicator	--
Durability Group Name	LTSLEEVNNL2S	Durability Group Equivalency Factor	1
Reduced Fee Test Group	No	Certification Region Code(s)	FA, CA
Complies with HD GHG 2b/3 regulations?	No		
Introduction into Commerce Date	10/07/2019	CAP2000 Conditional Certificate?	No
Independent Commercial Importer?	No	Alternative Fuel Converter Certificate?	No
SFTP Federal Composite Compliance Identifier	Tier 3	SFTP Tier 2 Composite CO Option	--
SFTP LEV-III Composite Compliance Indicator	Yes		
OBD Compliance Type	CARB	OBD Demonstration Vehicle Test Group	LTSLV00.0L2S
Test Group OBD Compliance Level	Full - no deficiencies	Number of Test Group OBD Deficiencies	0
OBD Deficiencies Comments	Battery Electric Vehicle - No OBD requirements		
Mfr Test Group Comments	MY2020 certification for Model S AWD carlines.		
Mfr Exhaust / Evap Standards Comments	--		

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Test Group		LTSLV00.0L2S		Evaporative/Refueling Family		--					
Models Covered by this Certificate											
Carline Manufacturer	Division	Carline	Certification Region Code(s)	Drive System	Trans - Type	- # of Gears	Trans - Lockup				
Tesla, Inc.	1 - Tesla Motors	69 - Model S Performance (19" Wheels)	Federal	All Wheel Drive	Automatic	1	No				
Tesla, Inc.	1 - Tesla Motors	67 - Model S Standard Range	California + CAA Section 177 states	All Wheel Drive	Automatic	1	No				
Tesla, Inc.	1 - Tesla Motors	70 - Model S Performance (21" Wheels)	Federal	All Wheel Drive	Automatic	1	No				
Tesla, Inc.	1 - Tesla Motors	69 - Model S Performance (19" Wheels)	California + CAA Section 177 states	All Wheel Drive	Automatic	1	No				
Tesla, Inc.	1 - Tesla Motors	67 - Model S Standard Range	Federal	All Wheel Drive	Automatic	1	No				
Tesla, Inc.	1 - Tesla Motors	70 - Model S Performance (21" Wheels)	California + CAA Section 177 states	All Wheel Drive	Automatic	1	No				
Tesla, Inc.	1 - Tesla Motors	68 - Model S Long Range	California + CAA Section 177 states	All Wheel Drive	Automatic	1	No				
Tesla, Inc.	1 - Tesla Motors	68 - Model S Long Range	Federal	All Wheel Drive	Automatic	1	No				
Engine Description											
Hybrid Type		--		Hybrid Description		--					
Engine Type		--		Mfr Engine Description		--					
Engine Block Arrangement		--		Mfr Engine Block Arrangement Description		--					
Camless Valvetrain Indicator		--		Oil Viscosity/Classification							
Number of Cylinders/Rotors		--		Mechanically Variable Compression Ratio Indicator		--					
After Treatment Device(s) (ATD)											
Mfr After Treatment Device (ATD) Comments		--									
Direct Ozone Reduction (DOR) Device		--									
Mfr Emission Control Device Comments		--									
Official Test Numbers											
Test Group	Fuel	FTP	US06	SC03	Cold CO	Highway	EPA City Litmus Value	EPA City Litmus Threshold	EPA Highway Litmus Value	EPA Highway Litmus Threshold	CREE Weighting Factor
Electricity		--	--	--	--	--	--	--	--	--	--

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Test Group	LTSLV00.0L2S	Evaporative/Refueling Family	--
Official Charge Depleting Test Numbers			
Test Group Fuel	UDDS	Highway	
Electricity	KTSL10058965	KTSL10058966	
Electricity	KTSL10058238	KTSL10058239	
Electricity	KTSL10058245	KTSL10058246	
Electricity	KTSL10058212	KTSL10058232	
Hybrid Electric Vehicle And Fuel Cell Information			
Rechargeable Energy Storage System	Battery(s)	Rechargeable Energy Storage System, if Other	--
Battery Type	Lithium Ion	Number of Battery Packs	1
Total Voltage of Battery Packs	400	Battery Energy Capacity	245
Battery Specific Energy	170	Battery Charger Type	On-Board
Number of Capacitors	--	Capacitor Rating (In Farads)	--
Mfr Capacitor Comments	--		
Hydraulic System Description	--		
Regenerative Braking Type	Electrical Regen Brake		
Regenerative Braking Source	Both	Driver Controlled Regenerative Braking	No
Mfr Regenerative Braking Description	--		
Drive Motor(s)/Generator(s)	2		
Motor/Generator Type 1	AC Induction	Rated Motor/Generator Power	193
Motor/Generator Type 2	AC 3 PHASE PERMANENT MAGNET	Rated Motor/Generator Power	205
Mfr Fuel Cell Description	--		
Fuel Cell On-Board H2 Storage Capacity (kg)	--	Usable H2 Fill Capacity (kg)	--
Mfr Hybrid Electric/ Electric Vehicle Comments	4 carlines (Standard Range, Long Range, Performance (21" Wheels), Performance (19" Wheels)) are available for 2020 MY Model S vehicles.		

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Test Group	LTSLV00.0L2S	Evaporative/Refueling Family	--
Manufacturer Test Vehicle Comments	This is a Dual Motor Base configuration with 100kWh battery Individual HP is 275 Hp Front / 259 Hp Rear Axle Ratio Front Motor 9.34 Rear Motor 9.73		

Certification Summary Information Report

Test Group	LTSLV00.0L2S	Evaporative/Refueling Family	--																																												
Test #	KTSL10058965	Test Procedure	81 - Charge Depleting UDDS																																												
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity																																												
Test Date	04/11/2018	Fuel	N/A																																												
Fuel Batch ID	--	Fuel Calibration Number	--																																												
Vehicle Class	N/A	DF Type	Mfr. Assigned																																												
Verify Test Lab ID	Fremont Dyno																																														
E10 Evaporative Test Measurement Method	--																																														
Test Start Odometer Reading	3137	Odometer Units	M																																												
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--																																												
State of Charge Delta	--																																														
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	Yes																																												
PHEV/EV TEST INFO																																															
Recharge Event Voltage	208	Recharge Event Energy (kiloWatt-hours)	88.4																																												
Charge Depleting Range (Calculated miles)	397.84	Charge Depleting Range (Actual miles)	397.84																																												
Equivalent All Electric Range (miles)	397.84																																														
Number of Charge Depleting Bags/Phases Conducted	4																																														
Charge Depleting Bag/Phase																																															
	<table border="1"> <thead> <tr> <th>Charge Depleting Bag/Phase #</th> <th>Test Result/Emission Name</th> <th>Unrounded Test Result</th> </tr> </thead> <tbody> <tr><td>1</td><td>Actual Distance Driven (miles)</td><td>397.84</td></tr> <tr><td>2</td><td>Average System Voltage</td><td>302.26</td></tr> <tr><td>3</td><td>Carbon Monoxide</td><td>0</td></tr> <tr><td>4</td><td>Carbon dioxide</td><td>0</td></tr> <tr><td>5</td><td>Carbon-Related Exhaust Emissions</td><td>0</td></tr> <tr><td>6</td><td>Drive Trace Absolute Speed Change Rating</td><td>-2.7044</td></tr> <tr><td>7</td><td>Drive Trace Energy Economy Rating</td><td>-1.9781</td></tr> <tr><td>8</td><td>Drive Trace Inertia Work Ratio Rating</td><td>-2.7911</td></tr> <tr><td>9</td><td>Integrated Amp-hours</td><td>246.26</td></tr> <tr><td>10</td><td>Manufacturer Fuel Economy</td><td>151.69</td></tr> <tr><td>11</td><td>Nitrogen Oxide</td><td>0</td></tr> <tr><td>12</td><td>Particulate Matter</td><td>0</td></tr> <tr><td>13</td><td>System End State of Charge Watt-hours</td><td>74.434</td></tr> <tr><td>14</td><td>System Start State of Charge Watt-hours</td><td>0</td></tr> </tbody> </table>	Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result	1	Actual Distance Driven (miles)	397.84	2	Average System Voltage	302.26	3	Carbon Monoxide	0	4	Carbon dioxide	0	5	Carbon-Related Exhaust Emissions	0	6	Drive Trace Absolute Speed Change Rating	-2.7044	7	Drive Trace Energy Economy Rating	-1.9781	8	Drive Trace Inertia Work Ratio Rating	-2.7911	9	Integrated Amp-hours	246.26	10	Manufacturer Fuel Economy	151.69	11	Nitrogen Oxide	0	12	Particulate Matter	0	13	System End State of Charge Watt-hours	74.434	14	System Start State of Charge Watt-hours	0	
Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result																																													
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11	Nitrogen Oxide	0																																													
12	Particulate Matter	0																																													
13	System End State of Charge Watt-hours	74.434																																													
14	System Start State of Charge Watt-hours	0																																													
Manufacturer Test Comments	Internal test result for MY2019 Standard Range. Range determined by using SAE J1634 Multi-cycle test procedure. END-SOC 74434-Wh MCT dc wh/mi is attached with EPA application. Added NMOG Test results.																																														

Certification Summary Information Report

Test Group	LTSLV00.0L2S	Evaporative/Refueling Family	--
Test #	KTSL10058966	Test Procedure	84 - Charge Depleting Highway
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	04/11/2018	Fuel	Electricity
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	LDV/Passenger Car	DF Type	Mfr. Assigned
Verify Test Lab ID	Fremont Dyno		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	3137	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	Yes
PHEV/EV TEST INFO			
Recharge Event Voltage	208	Recharge Event Energy (kiloWatt-hours)	88.4
Charge Depleting Range (Calculated miles)	367.45	Charge Depleting Range (Actual miles)	367.45
Equivalent All Electric Range (miles)	367.45		
Number of Charge Depleting Bags/Phases Conducted	2		
Charge Depleting Bag/Phase			
Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result	
1	Actual Distance Driven (miles)	367.45	
2	Average System Voltage	302.26	
3	Carbon Monoxide	0	
4	Carbon dioxide	0	
5	Carbon-Related Exhaust Emissions	0	
6	Drive Trace Absolute Speed Change Rating	-1.2868	
7	Drive Trace Energy Economy Rating	-0.633	
8	Drive Trace Inertia Work Ratio Rating	-1.8337	
9	Integrated Amp-hours	246.26	
10	Manufacturer Fuel Economy	140.1	
11	Nitrogen Oxide	0	
12	Non-methane organic gases	0	
13	Non-methane organic gases plus Nitrogen Oxides	999.999	
14	Particulate Matter	0	
15	System End State of Charge Watt-hours	74.434	
16	System Start State of Charge Watt-hours	0	

Certification Summary Information Report

Test Group		LTSLV00.0L2S		Evaporative/Refueling Family				--				
Manufacturer Test Comments		Internal Test results for MY2019 Model S Standard Range. Range determined by using SAE J1634 Multi-cycle test procedure. END-SOC - 74434 wh (System error limited to 4 digits). MCT dc wh/mi is attached with application.										
Certification Region	Useful Life	Standard Level	Emission Name	Rounded Result	RAF	NMOG/NM HC Ratio	Diesel Adjustment Factor	Add DF	Mult DF	Certification Level	Standard	Pass/Fail
Fed	150,000 miles	Federal Tier 3 Bin 0	CO	0	--	--	--	0	--	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CO	0	--	--	--	0	--	0	0	Pass
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--

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Certification Summary Information Report

Test Group	LTSLV00.0L2S	Evaporative/Refueling Family	--
Manufacturer Test Vehicle Comments	This is a Dual Motor Base configuration with 100kWh battery Individual HP is 205kW Front / 193KW Rear Axle Ratio Front Motor 9.34 Rear Motor 9.73		

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Test Group	LTSLV00.0L2S	Evaporative/Refueling Family	--
Test #	KTSL10058234	Test Procedure	2 - CVS 75 and later (w/o can. load)
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	12/29/2018	Fuel	Electricity
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	LDV/Passenger Car	DF Type	Mfr. Assigned
Verify Test Lab ID	Fremont Dyno		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	1000	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (kilowatt-hour per 100 miles)
CO (Carbon Monoxide)	0	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	0.32	--
DT-EER (Drive Trace Energy Economy Rating)	0.32	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	0.63	--
MFR FE (Manufacturer Fuel Economy)	19.54	172.4667349
NOX (Nitrogen Oxide)	0	--
NMOG (Non-methane organic gases)	0	--

Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE
Carbon-Related Exhaust Emissions	0	0

Manufacturer Test Comments

Internal Test results (CVS-75 UDDS Ambient) for MY2019 Model S Long Range. Wh/mi @ 50 % SOC - Bag 1 - 216.863; Bag 2- 182.2037; Bag 3 - 208.7477; Bag 4 - 180.7999;

Certification Summary Information Report

Test Group		LTSLV00.0L2S		Evaporative/Refueling Family		--						
Certification Region	Useful Life	Standard Level	Emission Name	Rounded Result	RAF	NMOG/NM HC Ratio	Diesel Adjustment Factor	Add DF	Mult DF	Certification Level	Standard	Pass/Fail
Fed	150,000 miles	Federal Tier 3 Bin 0	CO	0	--	--	--	--	1	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	CO	0	--	--	--	--	1	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	--	1	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	NMOG	0	--	--	--	--	1	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	NMOG+NOX	0	--	--	--	--	--	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	NOX	0	--	--	--	--	1	0	0	Pass
CA	150,000 miles	California ZEV	CO	0	--	--	--	--	1	0	0	Pass
CA	150,000 miles	California ZEV	CO	0	--	--	--	0	--	0	0	Pass
CA	150,000 miles	California ZEV	CREE	0	--	--	--	--	1	0	--	--
CA	150,000 miles	California ZEV	NMOG	0	--	--	--	--	1	0	0	Pass
CA	150,000 miles	California ZEV	NMOG+NOX	0	--	--	--	--	--	0	0	Pass
CA	150,000 miles	California ZEV	NOX	0	--	--	--	--	1	0	0	Pass

NOTE: For Non-charge depleting tests, the Rounded Result for CREE/OPT-CREE Emission names are Verify-calculated values.

Certification Summary Information Report

Test Group	LTSLV00.0L2S	Evaporative/Refueling Family	--
Test #	KTSL10058233	Test Procedure	3 - HWFE
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	04/08/2018	Fuel	N/A
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	N/A	DF Type	Mfr. Assigned
Verify Test Lab ID	Fremont Dyno		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	1000	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (kilowatt-hour per 100 miles)
DT-ASCR (Drive Trace Absolute Speed Change Rating)	-0.19	--
DT-EER (Drive Trace Energy Economy Rating)	-0.62	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	0.11	--
MFR FE (Manufacturer Fuel Economy)	20.95	160.8591885
NOX (Nitrogen Oxide)	0	--
NMOG (Non-methane organic gases)	0	--

Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE
Carbon-Related Exhaust Emissions	0	0

Manufacturer Test Comments

Internal Test results (HWY 3) for MY2019 Model S Long Range. The HFET result from the full discharge MCT is used for the 2-part and 5-part calculations. wh/mi - 203.7957;

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Test Group	LTSLV00.0L2S	Evaporative/Refueling Family	--
Test #	KTSL10058236	Test Procedure	90 - US06
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	12/29/2018	Fuel	N/A
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	N/A	DF Type	Mfr. Assigned
Verify Test Lab ID	Fremont Dyno		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	1000	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (kilowatt-hour per 100 miles)
CO (Carbon Monoxide)	0	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	-3.38	--
DT-EER (Drive Trace Energy Economy Rating)	-1.34	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	-4.93	--
MFR FE (Manufacturer Fuel Economy)	29.899	112.7127998
NOX (Nitrogen Oxide)	0	--
NMOG (Non-methane organic gases)	0	--

Manufacturer Test Comments

Internal Test results (US 06) for MY2019 Model S Long Range. US 06 dc wh/mi - City -298.9902; Hwy -274.9527 @ 50% SOC. City FE 29.8990; Hwy FE - 27.4927;

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Test Group	LTSLV00.0L2S	Evaporative/Refueling Family	--
Test #	KTSL10058237	Test Procedure	95 - SC03
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	12/29/2018	Fuel	N/A
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	N/A	DF Type	Mfr. Assigned
Verify Test Lab ID	Fremont Dyno		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	1000	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (kilowatt-hour per 100 miles)
CO (Carbon Monoxide)	0	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	0.74	--
DT-EER (Drive Trace Energy Economy Rating)	0.95	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	1.87	--
MFR FE (Manufacturer Fuel Economy)	26.78	125.8401792
NOX (Nitrogen Oxide)	0	--
NMOG (Non-methane organic gases)	0	--

Manufacturer Test Comments

Internal Test results (SC 03) for MY2019 Model S Long Range. dc wh/mi - 267.8 at 50% SOC.

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Test Group	LTSLV00.0L2S	Evaporative/Refueling Family	--																																												
Test #	KTSL10058212	Test Procedure	81 - Charge Depleting UDDS																																												
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity																																												
Test Date	12/29/2018	Fuel	N/A																																												
Fuel Batch ID	--	Fuel Calibration Number	--																																												
Vehicle Class	N/A	DF Type	Mfr. Assigned																																												
Verify Test Lab ID	Fremont Dyno																																														
E10 Evaporative Test Measurement Method	--																																														
Test Start Odometer Reading	1000	Odometer Units	M																																												
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--																																												
State of Charge Delta	--																																														
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	Yes																																												
PHEV/EV TEST INFO																																															
Recharge Event Voltage	208	Recharge Event Energy (kiloWatt-hours)	112.7																																												
Charge Depleting Range (Calculated miles)	513.9	Charge Depleting Range (Actual miles)	513.9																																												
Equivalent All Electric Range (miles)	513.9																																														
Number of Charge Depleting Bags/Phases Conducted	4																																														
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Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result																																													
1	Actual Distance Driven (miles)	513.9																																													
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10	Manufacturer Fuel Economy	153.7																																													
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12	Particulate Matter	0																																													
13	System End State of Charge Watt-hours	100.44																																													
14	System Start State of Charge Watt-hours	0																																													
Manufacturer Test Comments	Internal test result for MY2019 Long Range. Range determined by using SAE J1634 Multi-cycle test procedure. END-SOC 100441-Wh MCT dc wh/mi is attached with EPA application. Added NMOG Test results.																																														

Certification Summary Information Report

Test Group	LTSLV00.0L2S	Evaporative/Refueling Family	--
Test #	KTSL10058232	Test Procedure	84 - Charge Depleting Highway
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	12/29/2018	Fuel	Electricity
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	LDV/Passenger Car	DF Type	Mfr. Assigned
Verify Test Lab ID	Fremont Dyno		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	1000	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	Yes
PHEV/EV TEST INFO			
Recharge Event Voltage	208	Recharge Event Energy (kiloWatt-hours)	112.7
Charge Depleting Range (Calculated miles)	479.5	Charge Depleting Range (Actual miles)	479.5
Equivalent All Electric Range (miles)	479.5		
Number of Charge Depleting Bags/Phases Conducted	2		
Charge Depleting Bag/Phase			
Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result	
1	Actual Distance Driven (miles)	479.5	
2	Average System Voltage	352	
3	Carbon Monoxide	0	
4	Carbon dioxide	0	
5	Carbon-Related Exhaust Emissions	0	
6	Drive Trace Absolute Speed Change Rating	-1.287	
7	Drive Trace Energy Economy Rating	-0.633	
8	Drive Trace Inertia Work Ratio Rating	-1.834	
9	Integrated Amp-hours	285.4	
10	Manufacturer Fuel Economy	143.4	
11	Nitrogen Oxide	0	
12	Non-methane organic gases	0	
13	Non-methane organic gases plus Nitrogen Oxides	999.999	
14	Particulate Matter	0	
15	System End State of Charge Watt-hours	100.441	
16	System Start State of Charge Watt-hours	0	

Certification Summary Information Report

Test Group		LTSLV00.0L2S				Evaporative/Refueling Family				--		
Manufacturer Test Comments		Internal Test results for MY2019 Model S Long Range. Range determined by using SAE J1634 Multi-cycle test procedure. END-SOC - 100441 wh (System error limited to 4 digits). MCT dc wh/mi is attached with application.										
Certification Region	Useful Life	Standard Level	Emission Name	Rounded Result	RAF	NMOG/NM HC Ratio	Diesel Adjustment Factor	Add DF	Mult DF	Certification Level	Standard	Pass/Fail
Fed	150,000 miles	Federal Tier 3 Bin 0	CO	0	--	--	--	0	--	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CO	0	--	--	--	0	--	0	0	Pass
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--

Certification Summary Information Report

Test Group	LTSLV00.0L2S	Evaporative/Refueling Family	--
Test #	KTSL10058235	Test Procedure	86 - Charge Depleting 20 Degree F FTP
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	12/29/2018	Fuel	N/A
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	N/A	DF Type	Mfr. Assigned
Verify Test Lab ID	Fremont Dyno		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	1000	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	Yes
PHEV/EV TEST INFO			
Recharge Event Voltage	208	Recharge Event Energy (kiloWatt-hours)	76.5
Charge Depleting Range (Calculated miles)	252.7	Charge Depleting Range (Actual miles)	252.7
Equivalent All Electric Range (miles)	252.7		
Number of Charge Depleting Bags/Phases Conducted	34		
Charge Depleting Bag/Phase			
Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result	
1	Actual Distance Driven (miles)	252.7	
2	Average System Voltage	365	
3	Carbon Monoxide	0	
4	Carbon dioxide	0	
5	Carbon-Related Exhaust Emissions	0	
6	Drive Trace Absolute Speed Change Rating	0.22	
7	Drive Trace Energy Economy Rating	0	
8	Drive Trace Inertia Work Ratio Rating	0.72	
9	Integrated Amp-hours	185.3	
10	Manufacturer Fuel Economy	26.737	
11	Nitrogen Oxide	0	
12	Non-methane organic gases	0	
13	Non-methane organic gases plus Nitrogen Oxides	999.999	
14	Particulate Matter	0	
15	System End State of Charge Watt-hours	67.646	
16	System Start State of Charge Watt-hours	0	

Certification Summary Information Report

Test Group	LTSLV00.0L2S	Evaporative/Refueling Family	--
Manufacturer Test Comments	Internal Test results(Cold UDDS) for MY2019 Model S Long Range. END SOC is 67646 wh (System error limited to 4 digits) for full discharge. wh/mi - Bag 1 - 370.057; Bag 2 - 311.996; Bag 3 - 301.5752; Bag - 4- 286.8149; Tesla did not use external current measurement after the full cold discharge test, since AC energy is not used in any part of the 5-cycle consumption calculation. The stated recharge energy is an estimate using the DC energy from the cold discharge test and the round trip energy efficiency from the full discharge MCT.		

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Certification Summary Information Report

Test Group	LTSLV00.0L2S	Evaporative/Refueling Family	--
Manufacturer Test Vehicle Comments	This is a Dual Motor Performance (21" Wheels) configuration with 100kWh battery Individual HP is 205kW Front / 375KW Rear Axle Ratio Front Motor 9.34 Rear Motor 9.73		

Certification Summary Information Report

Test Group	LTSLV00.0L2S	Evaporative/Refueling Family	--
Test #	KTSL10058240	Test Procedure	2 - CVS 75 and later (w/o can. load)
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	03/08/2019	Fuel	Electricity
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	LDV/Passenger Car	DF Type	Mfr. Assigned
Verify Test Lab ID	Fremont Dyno		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	1000	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (kilowatt-hour per 100 miles)
CO (Carbon Monoxide)	0	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	-1.44	--
DT-EER (Drive Trace Energy Economy Rating)	-1.21	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	-2.34	--
MFR FE (Manufacturer Fuel Economy)	22.81	147.7422183
NOX (Nitrogen Oxide)	0	--
NMOG (Non-methane organic gases)	0	--

Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE
Carbon-Related Exhaust Emissions	0	0

Manufacturer Test Comments

Internal Test results (CVS-75 UDDS Ambient) for MY2019 Model S Performance. Wh/mi @ 50 % SOC - Bag 1 - 263.894; Bag 2- 228.1775; Bag 3 - 246.9657; Bag 4 - 221.6978;

Certification Summary Information Report

Test Group		LTSLV00.0L2S		Evaporative/Refueling Family				--				
Certification Region	Useful Life	Standard Level	Emission Name	Rounded Result	RAF	NMOG/NM HC Ratio	Diesel Adjustment Factor	Add DF	Mult DF	Certification Level	Standard	Pass/Fail
Fed	150,000 miles	Federal Tier 3 Bin 0	CO	0	--	--	--	--	1	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	CO	0	--	--	--	--	1	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	--	1	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	NMOG	0	--	--	--	--	1	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	NMOG+NOX	0	--	--	--	--	--	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	NOX	0	--	--	--	--	1	0	0	Pass
CA	150,000 miles	California ZEV	CO	0	--	--	--	--	1	0	0	Pass
CA	150,000 miles	California ZEV	CO	0	--	--	--	0	--	0	0	Pass
CA	150,000 miles	California ZEV	CREE	0	--	--	--	--	1	0	--	--
CA	150,000 miles	California ZEV	NMOG	0	--	--	--	--	1	0	0	Pass
CA	150,000 miles	California ZEV	NMOG+NOX	0	--	--	--	--	--	0	0	Pass
CA	150,000 miles	California ZEV	NOX	0	--	--	--	--	1	0	0	Pass

NOTE: For Non-charge depleting tests, the Rounded Result for CREE/OPT-CREE Emission names are Verify-calculated values.

Certification Summary Information Report

Test Group	LTSLV00.0L2S	Evaporative/Refueling Family	--
Test #	KTSL10058241	Test Procedure	3 - HWFE
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	03/08/2019	Fuel	N/A
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	N/A	DF Type	Mfr. Assigned
Verify Test Lab ID	Fremont Dyno		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	1000	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (kilowatt-hour per 100 miles)
DT-ASCR (Drive Trace Absolute Speed Change Rating)	1.86	--
DT-EER (Drive Trace Energy Economy Rating)	-0.22	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	2.39	--
MFR FE (Manufacturer Fuel Economy)	23.37	144.2019683
NOX (Nitrogen Oxide)	0	--
NMOG (Non-methane organic gases)	0	--

Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE
Carbon-Related Exhaust Emissions	0	0

Manufacturer Test Comments

Internal Test results (HWY 3) for MY2019 Model S Performance. The HFET result from the full discharge MCT is used for the 2-part and 5-part calculations. wh/mi - 232.4509;

Certification Summary Information Report

Test Group	LTSLV00.0L2S	Evaporative/Refueling Family	--
Test #	KTSL10058243	Test Procedure	90 - US06
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	03/08/2019	Fuel	N/A
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	N/A	DF Type	Mfr. Assigned
Verify Test Lab ID	Fremont Dyno		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	1000	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (kilowatt-hour per 100 miles)
CO (Carbon Monoxide)	0	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	-3.33	--
DT-EER (Drive Trace Energy Economy Rating)	-2.92	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	-4.6	--
MFR FE (Manufacturer Fuel Economy)	29.1887	115.4556387
NOX (Nitrogen Oxide)	0	--
NMOG (Non-methane organic gases)	0	--

Manufacturer Test Comments

Internal Test results (US 06) for MY2019 Model S Performance. US 06 dc wh/mi - City -328.8747; Hwy -291.8865 @ 50% SOC. City FE 32.8875; Hwy FE - 29.1887;

Certification Summary Information Report

Test Group	LTSLV00.0L2S	Evaporative/Refueling Family	--
Test #	KTSL10058244	Test Procedure	95 - SC03
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	03/08/2019	Fuel	N/A
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	N/A	DF Type	Mfr. Assigned
Verify Test Lab ID	Fremont Dyno		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	1000	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (kilowatt-hour per 100 miles)
CO (Carbon Monoxide)	0	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	0.93	--
DT-EER (Drive Trace Energy Economy Rating)	1.49	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	1.9	--
MFR FE (Manufacturer Fuel Economy)	29.78	113.1631968
NOX (Nitrogen Oxide)	0	--
NMOG (Non-methane organic gases)	0	--

Manufacturer Test Comments

Internal Test results (SC 03) for MY2019 Model S Performance. DC wh/mi - 297.8 at 50% SOC.

Test Group	LTSLV00.0L2S	Evaporative/Refueling Family	--																																													
Test #	KTSL10058238	Test Procedure	81 - Charge Depleting UDDS																																													
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity																																													
Test Date	03/08/2019	Fuel	N/A																																													
Fuel Batch ID	--	Fuel Calibration Number	--																																													
Vehicle Class	N/A	DF Type	Mfr. Assigned																																													
Verify Test Lab ID	Fremont Dyno																																															
E10 Evaporative Test Measurement Method	--																																															
Test Start Odometer Reading	1000	Odometer Units	M																																													
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--																																													
State of Charge Delta	--																																															
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	Yes																																													
PHEV/EV TEST INFO																																																
Recharge Event Voltage	208	Recharge Event Energy (kiloWatt-hours)	113.29																																													
Charge Depleting Range (Calculated miles)	436.7	Charge Depleting Range (Actual miles)	436.7																																													
Equivalent All Electric Range (miles)	436.7																																															
Number of Charge Depleting Bags/Phases Conducted	4																																															
Charge Depleting Bag/Phase																																																
<table><tr><th>Charge Depleting Bag/Phase #</th><th>Test Result/Emission Name</th><th>Unrounded Test Result</th></tr><tr><td>1</td><td>Actual Distance Driven (miles)</td><td>436.7</td></tr><tr><td>2</td><td>Average System Voltage</td><td>351.8</td></tr><tr><td>3</td><td>Carbon Monoxide</td><td>0</td></tr><tr><td>4</td><td>Carbon dioxide</td><td>0</td></tr><tr><td>5</td><td>Carbon-Related Exhaust Emissions</td><td>0</td></tr><tr><td>6</td><td>Drive Trace Absolute Speed Change Rating</td><td>-1.278</td></tr><tr><td>7</td><td>Drive Trace Energy Economy Rating</td><td>-1.744</td></tr><tr><td>8</td><td>Drive Trace Inertia Work Ratio Rating</td><td>-2.108</td></tr><tr><td>9</td><td>Integrated Amp-hours</td><td>283.2</td></tr><tr><td>10</td><td>Manufacturer Fuel Economy</td><td>129.9</td></tr><tr><td>11</td><td>Nitrogen Oxide</td><td>0</td></tr><tr><td>12</td><td>Particulate Matter</td><td>0</td></tr><tr><td>13</td><td>System End State of Charge Watt-hours</td><td>99.617</td></tr><tr><td>14</td><td>System Start State of Charge Watt-hours</td><td>0</td></tr></table>				Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result	1	Actual Distance Driven (miles)	436.7	2	Average System Voltage	351.8	3	Carbon Monoxide	0	4	Carbon dioxide	0	5	Carbon-Related Exhaust Emissions	0	6	Drive Trace Absolute Speed Change Rating	-1.278	7	Drive Trace Energy Economy Rating	-1.744	8	Drive Trace Inertia Work Ratio Rating	-2.108	9	Integrated Amp-hours	283.2	10	Manufacturer Fuel Economy	129.9	11	Nitrogen Oxide	0	12	Particulate Matter	0	13	System End State of Charge Watt-hours	99.617	14	System Start State of Charge Watt-hours	0
Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result																																														
1	Actual Distance Driven (miles)	436.7																																														
2	Average System Voltage	351.8																																														
3	Carbon Monoxide	0																																														
4	Carbon dioxide	0																																														
5	Carbon-Related Exhaust Emissions	0																																														
6	Drive Trace Absolute Speed Change Rating	-1.278																																														
7	Drive Trace Energy Economy Rating	-1.744																																														
8	Drive Trace Inertia Work Ratio Rating	-2.108																																														
9	Integrated Amp-hours	283.2																																														
10	Manufacturer Fuel Economy	129.9																																														
11	Nitrogen Oxide	0																																														
12	Particulate Matter	0																																														
13	System End State of Charge Watt-hours	99.617																																														
14	System Start State of Charge Watt-hours	0																																														
Manufacturer Test Comments																																																
Internal test result for MY2019 Model S Performance. Range determined by using SAE J1634 Multi-cycle test procedure. END-SOC 99617-Wh MCT dc wh/mi is attached with EPA application. Added NMOG Test results.																																																

Certification Summary Information Report

Test Group	LTSLV00.0L2S	Evaporative/Refueling Family	--
Test #	KTSL10058239	Test Procedure	84 - Charge Depleting Highway
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	03/08/2019	Fuel	Electricity
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	LDV/Passenger Car	DF Type	Mfr. Assigned
Verify Test Lab ID	Fremont Dyno		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	1000	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	Yes
PHEV/EV TEST INFO			
Recharge Event Voltage	208	Recharge Event Energy (kiloWatt-hours)	113.29
Charge Depleting Range (Calculated miles)	426.2	Charge Depleting Range (Actual miles)	426.2
Equivalent All Electric Range (miles)	426.2		
Number of Charge Depleting Bags/Phases Conducted	2		
Charge Depleting Bag/Phase			
Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result	
1	Actual Distance Driven (miles)	426.2	
2	Average System Voltage	351.8	
3	Carbon Monoxide	0	
4	Carbon dioxide	0	
5	Carbon-Related Exhaust Emissions	0	
6	Drive Trace Absolute Speed Change Rating	-1.447	
7	Drive Trace Energy Economy Rating	-0.413	
8	Drive Trace Inertia Work Ratio Rating	-1.783	
9	Integrated Amp-hours	283.2	
10	Manufacturer Fuel Economy	126.8	
11	Nitrogen Oxide	0	
12	Non-methane organic gases	0	
13	Non-methane organic gases plus Nitrogen Oxides	999.999	
14	Particulate Matter	0	
15	System End State of Charge Watt-hours	99.617	
16	System Start State of Charge Watt-hours	0	

Certification Summary Information Report

Test Group		LTSLV00.0L2S			Evaporative/Refueling Family				--			
Manufacturer Test Comments		Internal Test results for MY2019 Model S Performance. Range determined by using SAE J1634 Multi-cycle test procedure. END-SOC - 99617 wh (System error limited to 4 digits). MCT dc wh/mi is attached with application.										
Certification Region	Useful Life	Standard Level	Emission Name	Rounded Result	RAF	NMOG/NM HC Ratio	Diesel Adjustment Factor	Add DF	Mult DF	Certification Level	Standard	Pass/Fail
Fed	150,000 miles	Federal Tier 3 Bin 0	CO	0	--	--	--	0	--	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CO	0	--	--	--	0	--	0	0	Pass
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--

Certification Summary Information Report

Test Group	LTSLV00.0L2S	Evaporative/Refueling Family	--
Test #	KTSL10058242	Test Procedure	86 - Charge Depleting 20 Degree F FTP
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	03/08/2019	Fuel	N/A
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	N/A	DF Type	Mfr. Assigned
Verify Test Lab ID	Fremont Dyno		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	1000	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	Yes
PHEV/EV TEST INFO			
Recharge Event Voltage	208	Recharge Event Energy (kiloWatt-hours)	105.89
Charge Depleting Range (Calculated miles)	284.4	Charge Depleting Range (Actual miles)	284.4
Equivalent All Electric Range (miles)	284.4		
Number of Charge Depleting Bags/Phases Conducted	38		
Charge Depleting Bag/Phase			
Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result	
1	Actual Distance Driven (miles)	284.4	
2	Average System Voltage	346.8	
3	Carbon Monoxide	0	
4	Carbon dioxide	0	
5	Carbon-Related Exhaust Emissions	0	
6	Drive Trace Absolute Speed Change Rating	2.03	
7	Drive Trace Energy Economy Rating	1.12	
8	Drive Trace Inertia Work Ratio Rating	3.11	
9	Integrated Amp-hours	270	
10	Manufacturer Fuel Economy	32.93	
11	Nitrogen Oxide	0	
12	Non-methane organic gases	0	
13	Non-methane organic gases plus Nitrogen Oxides	999.999	
14	Particulate Matter	0	
15	System End State of Charge Watt-hours	93.637	
16	System Start State of Charge Watt-hours	0	

Certification Summary Information Report

Test Group	LTSLV00.0L2S	Evaporative/Refueling Family	--
Manufacturer Test Comments	Internal Test results(Cold UDDS) for MY2019 Model S Performance. END SOC is 93637 wh (System error limited to 4 digits) for full discharge. wh/mi - Bag 1 - 456.2787; Bag 2 - 394.9108; Bag 3 - 401.8584; Bag - 4- 373.0133; Tesla did not use external current measurement after the full cold discharge test, since AC energy is not used in any part of the 5-cycle consumption calculation. The stated recharge energy is an estimate using the DC energy from the cold discharge test and the round trip energy efficiency from the full discharge MCT.		

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Certification Summary Information Report

Test Group	LTSLV00.0L2S	Evaporative/Refueling Family	--
Manufacturer Test Vehicle Comments	This is a Dual Motor Performance (19" Wheels) configuration with 100kWh battery Individual HP is 205kW Front / 375KW Rear Axle Ratio Front Motor 9.34 Rear Motor 9.73		

Certification Summary Information Report

Test Group	LTSLV00.0L2S	Evaporative/Refueling Family	--																																												
Test #	KTSL10058245	Test Procedure	81 - Charge Depleting UDDS																																												
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity																																												
Test Date	03/24/2019	Fuel	N/A																																												
Fuel Batch ID	--	Fuel Calibration Number	--																																												
Vehicle Class	N/A	DF Type	Mfr. Assigned																																												
Verify Test Lab ID	Fremont Dyno																																														
E10 Evaporative Test Measurement Method	--																																														
Test Start Odometer Reading	1000	Odometer Units	M																																												
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--																																												
State of Charge Delta	--																																														
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	Yes																																												
PHEV/EV TEST INFO																																															
Recharge Event Voltage	208	Recharge Event Energy (kiloWatt-hours)	112.92																																												
Charge Depleting Range (Calculated miles)	462.4	Charge Depleting Range (Actual miles)	462.4																																												
Equivalent All Electric Range (miles)	462.4																																														
Number of Charge Depleting Bags/Phases Conducted	4																																														
Charge Depleting Bag/Phase																																															
	<table border="1"> <thead> <tr> <th>Charge Depleting Bag/Phase #</th> <th>Test Result/Emission Name</th> <th>Unrounded Test Result</th> </tr> </thead> <tbody> <tr><td>1</td><td>Actual Distance Driven (miles)</td><td>462.4</td></tr> <tr><td>2</td><td>Average System Voltage</td><td>351.9</td></tr> <tr><td>3</td><td>Carbon Monoxide</td><td>0</td></tr> <tr><td>4</td><td>Carbon dioxide</td><td>0</td></tr> <tr><td>5</td><td>Carbon-Related Exhaust Emissions</td><td>0</td></tr> <tr><td>6</td><td>Drive Trace Absolute Speed Change Rating</td><td>-0.749</td></tr> <tr><td>7</td><td>Drive Trace Energy Economy Rating</td><td>-1.071</td></tr> <tr><td>8</td><td>Drive Trace Inertia Work Ratio Rating</td><td>-1.249</td></tr> <tr><td>9</td><td>Integrated Amp-hours</td><td>281</td></tr> <tr><td>10</td><td>Manufacturer Fuel Economy</td><td>138</td></tr> <tr><td>11</td><td>Nitrogen Oxide</td><td>0</td></tr> <tr><td>12</td><td>Particulate Matter</td><td>0</td></tr> <tr><td>13</td><td>System End State of Charge Watt-hours</td><td>98.861</td></tr> <tr><td>14</td><td>System Start State of Charge Watt-hours</td><td>0</td></tr> </tbody> </table>	Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result	1	Actual Distance Driven (miles)	462.4	2	Average System Voltage	351.9	3	Carbon Monoxide	0	4	Carbon dioxide	0	5	Carbon-Related Exhaust Emissions	0	6	Drive Trace Absolute Speed Change Rating	-0.749	7	Drive Trace Energy Economy Rating	-1.071	8	Drive Trace Inertia Work Ratio Rating	-1.249	9	Integrated Amp-hours	281	10	Manufacturer Fuel Economy	138	11	Nitrogen Oxide	0	12	Particulate Matter	0	13	System End State of Charge Watt-hours	98.861	14	System Start State of Charge Watt-hours	0	
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Manufacturer Test Comments	Internal test result for MY2019 Model S Performance with 19" tire. Range determined by using SAE J1634 Multi-cycle test procedure. END-SOC 98861-Wh MCT dc wh/mi is attached with EPA application. Added NMOG Test results.																																														

Certification Summary Information Report

Test Group	LTSLV00.0L2S	Evaporative/Refueling Family	--
Test #	KTSL10058246	Test Procedure	84 - Charge Depleting Highway
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	03/25/2019	Fuel	Electricity
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	LDV/Passenger Car	DF Type	Mfr. Assigned
Verify Test Lab ID	Fremont Dyno		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	1000	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	Yes
PHEV/EV TEST INFO			
Recharge Event Voltage	208	Recharge Event Energy (kiloWatt-hours)	112.92
Charge Depleting Range (Calculated miles)	459.4	Charge Depleting Range (Actual miles)	459.4
Equivalent All Electric Range (miles)	459.4		
Number of Charge Depleting Bags/Phases Conducted	2		
Charge Depleting Bag/Phase			
Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result	
1	Actual Distance Driven (miles)	459.4	
2	Average System Voltage	351.9	
3	Carbon Monoxide	0	
4	Carbon dioxide	0	
5	Carbon-Related Exhaust Emissions	0	
6	Drive Trace Absolute Speed Change Rating	-1.956	
7	Drive Trace Energy Economy Rating	-0.534	
8	Drive Trace Inertia Work Ratio Rating	-2.439	
9	Integrated Amp-hours	281	
10	Manufacturer Fuel Economy	137.1	
11	Nitrogen Oxide	0	
12	Non-methane organic gases	0	
13	Non-methane organic gases plus Nitrogen Oxides	999.999	
14	Particulate Matter	0	
15	System End State of Charge Watt-hours	98.861	
16	System Start State of Charge Watt-hours	0	

Certification Summary Information Report

Test Group		LTSLV00.0L2S		Evaporative/Refueling Family				--				
Manufacturer Test Comments		Internal Test results for MY2019 Model S Performance with 19" tire. Range determined by using SAE J1634 Multi-cycle test procedure. END-SOC - 98861 wh (System error limited to 4 digits). MCT dc wh/mi is attached with application.										
Certification Region	Useful Life	Standard Level	Emission Name	Rounded Result	RAF	NMOG/NM HC Ratio	Diesel Adjustment Factor	Add DF	Mult DF	Certification Level	Standard	Pass/Fail
Fed	150,000 miles	Federal Tier 3 Bin 0	CO	0	--	--	--	0	--	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	CO	0	--	--	--	0	--	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CO	0	--	--	--	0	--	0	0	Pass
CA	150,000 miles	California ZEV	CO	0	--	--	--	0	--	0	0	Pass
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--
Fuel Properties												

Certification Summary Information Report

Test Group		LTSLV00.0L2S			Evaporative/Refueling Family			--	
Consolidated List of Standards									
Exhaust Standards									
Cert Region		California + CAA Section 177 states			Cert/In-Use Code			Cert	
Vehicle Class		LDV/Passenger Car			Standard Level			California ZEV	
Fuel		Electricity			Test Procedure			Charge Depleting Highway	
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
150,000 miles	CO	--	--	--	--	--	--	0	0
150,000 miles	CO-COMP	--	--	--	--	--	--	0	0
150,000 miles	CREE	--	--	--	--	--	--	0	0
150,000 miles	NMOG+NOX-COMP	--	--	--	--	--	--	0	0
Cert Region		Federal			Cert/In-Use Code			Cert	
Vehicle Class		LDV/Passenger Car			Standard Level			Federal Tier 3 Bin 0	
Fuel		Electricity			Test Procedure			CVS 75 and later (w/o can. load)	
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
150,000 miles	CO	--	--	--	--	--	1	--	0
150,000 miles	CO	--	--	--	--	--	1	--	0
150,000 miles	CO-COMP	--	--	--	--	--	1	--	0
150,000 miles	CREE	--	--	--	--	--	1	--	0
150,000 miles	NMOG	--	--	--	--	--	1	--	0
150,000 miles	NMOG+NOX	--	--	--	--	--	1	--	0
150,000 miles	NMOG+NOX-COMP	--	--	--	--	--	1	--	0
150,000 miles	NOX	--	--	--	--	--	1	--	0

Certification Summary Information Report

Test Group		LTSLV00.0L2S			Evaporative/Refueling Family			--	
Cert Region		Federal			Cert/In-Use Code			Cert	
Vehicle Class		LDV/Passenger Car			Standard Level			Federal Tier 3 Bin 0	
Fuel		Electricity			Test Procedure			Charge Depleting Highway	
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
150,000 miles	CO	--	--	--	--	--	--	0	0
150,000 miles	CO-COMP	--	--	--	--	--	--	0	0
150,000 miles	CREE	--	--	--	--	--	--	0	0
150,000 miles	NMOG+NOX-COMP	--	--	--	--	--	--	0	0
Cert Region		California + CAA Section 177 states			Cert/In-Use Code			Cert	
Vehicle Class		LDV/Passenger Car			Standard Level			California ZEV	
Fuel		Electricity			Test Procedure			CVS 75 and later (w/o can. load)	
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
150,000 miles	CO	--	--	--	--	--	--	0	0
150,000 miles	CO	--	--	--	--	--	1	--	0
150,000 miles	CO-COMP	--	--	--	--	--	1	--	0
150,000 miles	CREE	--	--	--	--	--	1	--	0
150,000 miles	NMOG	--	--	--	--	--	1	--	0
150,000 miles	NMOG+NOX	--	--	--	--	--	1	--	0
150,000 miles	NMOG+NOX-COMP	--	--	--	--	--	1	--	0
150,000 miles	NOX	--	--	--	--	--	1	--	0

Certification Summary Information Report

Test Group		LTSLV00.0L2S	Evaporative/Refueling Family		--
Glossary					
Useful Life					
4	4,000 miles		120	120,000 miles	
50	50,000 miles		150	150,000 miles	
100	100,000 miles				
Emission Name					
HC-TOTAL	Total Hydrocarbon		METHANOL	CH3OH - Methanol	
CO	Carbon Monoxide		N2O	Nitrous Oxide	
CO2	Carbon dioxide		SPITBACK	Spitback Hydrocarbon in grams	
CREE	Carbon-Related Exhaust Emissions		AMP-HRS	Integrated Amp-hours	
OPT-CREE	Optional Carbon-Related Exhaust Emissions		START-SOC	System Start State of Charge Watt-hours	
NOX	Nitrogen Oxide		END-SOC	System End State of Charge Watt-hours	
PM	Particulate Matter		ACT-DISTANCE	Actual Distance Driven (miles)	
PM-COMP	SFTP Composite Particulate Matter		AS-VOLT	Average System Voltage	
HC-NM	Non-methane Hydrocarbon		CO2 BAG 1	Bag 1 Carbon Dioxide	
OMHCE	Organic material Hydrocarbon Equivalent		CO2 BAG 2	Bag 2 Carbon Dioxide	
OMNMHCE	Organic material non-methane HC equivalent		CO2 BAG 3	Bag 3 Carbon Dioxide	
NMOG	Non-methane organic gases		CO2 BAG 4	Bag 4 Carbon Dioxide	
HCHO	Formaldehyde		NMOG+NOX	Non-methane organic gases plus Nitrogen Oxides	
H3C2HO	Acetaldehyde		NMOG+NOX-COMP	SFTP Composite Non-methane Organic Gases + Nitrogen Oxides	
HC-NM+NOX	SFTP Non-methane Hydrocarbon + Nitrogen Oxides for US06 or SC03		DT-IWRR	Drive Trace Inertia Work Ratio Rating	
HC-NM+NOX-COMP	SFTP Composite Non-methane Hydrocarbon + Nitrogen Oxides		DT-ASCR	Drive Trace Absolute Speed Change Rating	
CO-COMP	SFTP Composite Carbon Monoxide		DT-EER	Drive Trace Energy Economy Rating	
ETHANOL	C2H5OH - Ethanol		COMB-CREE	Combined Carbon-Related Exhaust Emissions	
FE BAG 1	Bag 1 Fuel Economy		COMB-OPT-CREE	Combined Optional Carbon-Related Exhaust Emissions	
FE BAG 2	Bag 2 Fuel Economy		HC-TOTAL-EQUIV	Total Hydrocarbon equivalent - Evap only	
FE BAG 3	Bag 3 Fuel Economy		METHANE-COMB	Combined CH4 for HD 2b/3 vehicles only	
FE BAG 4	Bag 4 Fuel Economy		N2O-COMB	Combined Nitrous Oxide for HD 2b/3 vehicles only	
MFR FE	Manufacturer Fuel Economy		LEAK-DIA	Effective Leak Diameter (inches)	
HC	Hydrocarbon for Running Loss and ORVR		LEAK-GAS CAP	Gas Cap Leakage (cc/min)	
METHANE	CH4 - Methane		CO2-COMB	Combined Carbon Dioxide for HD 2b/3 Vehicles Only	
Certification Region					
CA	California + CAA Section 177 states		FA	Federal	
Exhaust Emission Standard Level					
B1	Federal Tier 2 Bin 1		L3ULEV340	California LEV-III ULEV340	
B2	Federal Tier 2 Bin 2		L3ULEV250	California LEV-III ULEV250	
B3	Federal Tier 2 Bin 3		L3ULEV200	California LEV-III ULEV200	
B4	Federal Tier 2 Bin 4		L3SULEV170	California LEV-III SULEV170	
B5	Federal Tier 2 Bin 5		L3SULEV150	California LEV-III SULEV150	

Certification Summary Information Report

Test Group		LTSLV00.0L2S	Evaporative/Refueling Family		--
B6	Federal Tier 2 Bin 6		L3LEV630	California LEV-III LEV630	
B7	Federal Tier 2 Bin 7		L3ULEV570	California LEV-III ULEV570	
B8	Federal Tier 2 Bin 8		L3ULEV400	California LEV-III ULEV400	
B9	Federal Tier 2 Bin 9		L3ULEV270	California LEV-III ULEV270	
B10	Federal Tier 2 Bin 10		L3SULEV230	California LEV-III SULEV230	
B11	Federal Tier 2 Bin 11		L3SULEV200	California LEV-III SULEV200	
HDV1	HDV1 (Federal HD chassis Class 2b GVW 8501-10000)		T3B160	Federal Tier 3 Bin 160	
HDV2	HDV2 (Federal HD chassis Class 3 GVW 10001-14000)		T3B125	Federal Tier 3 Bin 125	
L2	California LEV-II LEV		T3B110	Federal Tier 3 Transitional Bin 110	
L2OP	California LEV-II LEV Optional		T3B85	Federal Tier 3 Transitional Bin 85	
U2	California LEV-II ULEV		T3SULEV30	Federal Tier 3 Transitional LEV-II SULEV30 Carryover	
S2	California LEV-II SULEV		T3B70	Federal Tier 3 Bin 70	
ZEV	California ZEV		T3B50	Federal Tier 3 Bin 50	
OT	Other		T3B30	Federal Tier 3 Bin 30	
T1	Federal Tier 1		T3B20	Federal Tier 3 Bin 20	
PZEV	California PZEV		T3B0	Federal Tier 3 Bin 0	
L2LEV160	California LEV-II LEV160		HDV2B395	Federal Tier 3 HD Class 2b Transitional Bin 395	
L2ULEV125	California LEV-II ULEV125		HDV2B340	Federal Tier 3 HD Class 2b Transitional Bin 340	
L2SULEV30	California LEV-II SULEV30		HDV2B250	Federal Tier 3 HD Class 2b Bin 250	
L2LEV395	California LEV-II LEV395		HDV2B200	Federal Tier 3 HD Class 2b Bin 200	
L2ULEV340	California LEV-II ULEV340		HDV2B170	Federal Tier 3 HD Class 2b Bin 170	
L2LEV630	California LEV-II LEV630		HDV2B150	Federal Tier 3 HD Class 2b Bin 150	
L2ULEV570	California LEV-II ULEV570		HDV2B0	Federal Tier 3 HD Class 2b Bin 0	
L3LEV160	California LEV-III LEV160		HDV3B630	Federal Tier 3 HD Class 3 Transitional Bin 630	
L3ULEV125	California LEV-III ULEV125		HDV3B570	Federal Tier 3 HD Class 3 Transitional Bin 570	
L3ULEV70	California LEV-III ULEV70		HDV3B400	Federal Tier 3 HD Class 3 Bin 400	
L3ULEV50	California LEV-III ULEV50		HDV3B270	Federal Tier 3 HD Class 3 Bin 270	
L3SULEV30	California LEV-III SULEV30		HDV3B230	Federal Tier 3 HD Class 3 Bin 230	
L3SULEV20	California LEV-III SULEV20		HDV3B200	Federal Tier 3 HD Class 3 Bin 200	
L3LEV395	California LEV-III LEV395		HDV3B0	Federal Tier 3 HD Class 3 Bin 0	
Transmission Type Code					
AMS	Automated Manual- Selectable (e.g. Automated Manual with paddles)	M	Manual		
A	Automatic	OT	Other		
AM	Automated Manual	SA	Semi-Automatic		
CVT	Continuously Variable	SCV	Selectable Continuously Variable (e.g. CVT with paddles)		
Drive System Code					
4	4-Wheel Drive	P	Part-time 4-Wheel Drive		
F	2-Wheel Drive, Front	A	All Wheel Drive		
R	2-Wheel Drive, Rear				

Certification Summary Information Report

Test Group		LTSLV00.0L2S	Evaporative/Refueling Family		--
Additional Terms and Acronyms					
AFC	Alternative Fuel Converter		ICI	Independent Commercial Importer	
CSI	Certificate Summary Information		ORVR	Onboard Refueling Vapor Recovery	
DF	Deterioration Factor		SIL	Shift Indicator Light	
Evap	Evaporation, Evaporative		Trans	Transmission	