2/22/2022

Mr. Tristin Rojeck
Vehicle Programs and Compliance Division
Environmental Protection Agency
2000 Traverwood,
Ann Arbor, MI 48105

Subject: Request for issuance of a new COC to include a running change – Addition of Model Y AWD Variant to the Model Y AWD Platform

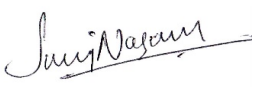
Tesla, Inc. requests that the EPA issue a Certificate of Conformity for the subject test group.

Attached to this request is the Part 1 Application. Tesla believes that the test group complies with all applicable regulations contained within Title 40 of the CFR, California Amendments to Subparts B, C, and S, Part 86 and Part 88, Title 40 of the CFR and Title 13 of the California Code of Regulations

Vehicle Category:	Light Duty Vehicle (< 8000 lbs. GVW)
Durability Group:	NTSLEEVNNL2Y
Test Group:	NTSLV00.0L2Y
Summary Sheet No:	NA
Durability Group Description:	NA
Durability Vehicle:	NA
OBD Group:	NA
Test Group Description:	Tesla differentiates test groups based on: 1) battery type, 2) number of drive motors, and 3) vehicle line. L - Lithium Ion Battery 2 - AWD Motor Y - Model Y Line of vehicles
Applicable Standards:	FEDERAL Tier 3 BIN 0 & CALIFORNIA ZEV
Carlines Covered by this certificate:	Model Y Performance AWD, Model Y Long Range AWD, Model Y AWD

Your early review and issuance of the certificate will be greatly appreciated. If you have any questions, please contact me at our office at (510) 249-3755

Sincerely,



Suraj Nagaraj
Sr. Director - Vehicle Homologation

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1 COMMUNICATIONS

1.01 Mailing information

01.01.01 Certification information
Tesla, Inc
3500 Deer Creek Road
Palo Alto, CA 94304

01.01.02 Responsible officials
01.01.03 - Primary Contact
Mr. Suraj Nagaraj, Sr Director- Vehicle Homologation
Telephone 510 249 8749

01.01.04 - Secondary Contact
Mr. Ray Wang, Sr Homologation Engineer - Vehicle Homologation
Telephone 240-994-5639

3 FACILITIES, EQUIPMENT AND TEST PROCEDURES
Internal range test reports are on file at Tesla

3.01 Procedure to determine mass emissions of the fuel-fired heater
Not applicable; vehicle not equipped with a fuel fired heater.

3.02 Battery pre-conditioning procedures

The lithium ion battery cells are cycled by the battery cell manufacturer before they are assembled into battery packs. There is no further pre-conditioning necessary.

3.03 Vehicle Configurations and sub configurations
Refer to Appendix 03.03

3.04 TEST PROCEDURES

SAE J1634 was followed for all Range testing and SAE J2263 (as issued 2008-12) was followed for Road load measurement.

SPECIAL TEST INSTRUCTIONS

- See attachment

04.00 Statement of Compliance
This vehicle conforms to US EPA Federal Tier 3 Bin 0 and State of California regulations applicable to 2022 Model Year new ZEV Light-duty Vehicles

05.00 RESERVED

06.00 MAINTENANCE

6.01 Test vehicle scheduled maintenance
Not applicable.

6.02 Recommended customer maintenance schedule
See Owner Hand Book.

6.03 Lubricants and heater fuels

Heater fuel:	Not applicable
Transmission Lubricant:	Factory Fill
Capacity	1750 mL (Front), 2750 mL (Rear)
Make	SK
Trade name	ATF-1351-G
Type	Synthetic
Viscosity	9210 cP at -40°C
Viscosity	5.9 cSt at 100°C

Test Vehicle

Same as factory fill

07.00 LABELS

07.01 Label locations

VECI Emission Label

See 07.02

Monroney Label

See 07.03

07.02 Emission Control Information label: 2022 Model Year
(Mandated in CFR Title 40, Part 86; §86.1807. Label format agreed with EPA

VEHICLE EMISSION CONTROL INFORMATION

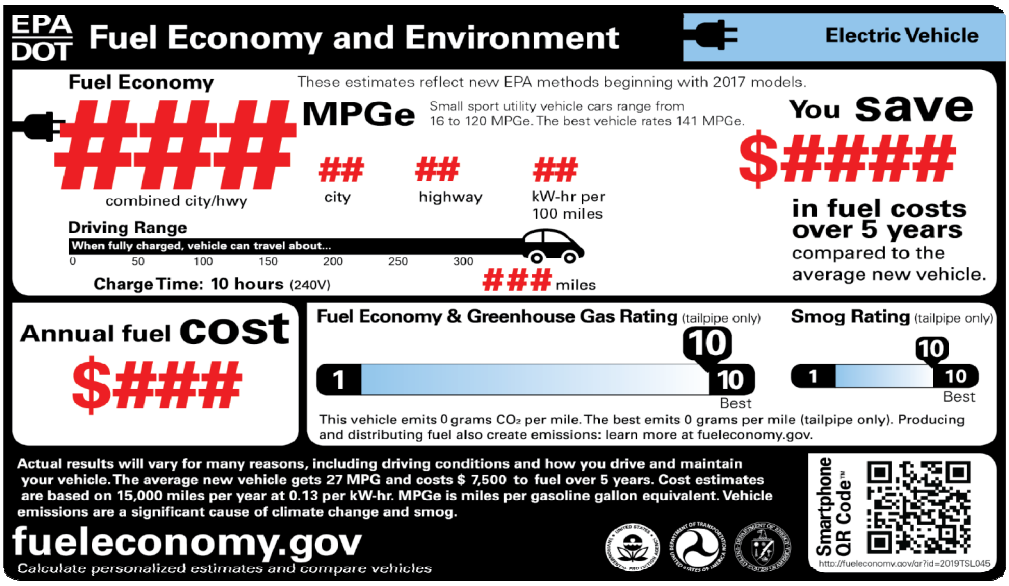
THIS VEHICLE CONFORMS TO U.S. EPA REGULATIONS APPLICABLE TO 2022 MODEL YEAR NEW TIER 3 BIN 0 LIGHT-DUTY VEHICLES AND TO CALIFORNIA REGULATIONS APPLICABLE TO ZEV PASSENGER CARS AND IS CERTIFIED FOR SALE IN CALIFORNIA.

MODEL: 2022 TESLA MODEL Y
MOTOR: 3 PHASE AC
TEST GROUP: NTSLV00.0L2Y
EVAPORATIVE FAMILY: NTSLR0000L2Y

07.03 California Environmental Performance Index label: 2022 Model Year

(Mandated in California Environmental Performance Label Specifications for 2009 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Passenger Cars. Label format agreed with EPA/ CARB)

Model Y AWD - FE Label



07.04 Projected sales information (Confidential)

08:00 GENERAL TECHNICAL DESCRIPTION

08.01 DESCRIPTION OF PROPULSION SYSTEM

Rear Drive Unit:
Traction motor × 1,
Fixed ratio gearbox,
Drive inverter

Rear Drive Unit:
Traction motor × 1,
Fixed ratio gearbox,
Drive inverter

8.02 DESCRIPTION OF MOTOR(s)

Front motor:
3-Phase AC induction motor utilizing a squirrel cage 4 pole, variable frequency drive to control the motor.

Rear motor:
3-phase AC internal permanent magnet motor utilizing a six-pole, high-frequency design with inverter-controlled magnetic flux.

8.03 DESCRIPTION OF BATTERIES

The battery packs used in the Tesla Model Y is one of the most technically advanced lithium-ion battery packs in the world. Using customized automotive grade lithium-ion cells, the Tesla battery achieves unmatched energy density and enables the long range capability of the vehicle. The low-profile flat packaging enables an efficient and functional occupant area. The battery has replaceable active short circuit protection that is accessible with the battery in the vehicle via an access panel. A set of switches inside the pack disconnect high voltage from the positive and negative terminals on the battery pack when not in use. To disable the switches from closing during vehicle service, the 12V power feed can be disconnected at the low voltage wiring connector into the battery pack. The battery control system consists of the Battery Monitoring System (BMS) which controls the switches, measures pack current and voltages, electrical isolation of the battery from chassis ground and monitors cell voltages and module temperatures from the Battery Monitor Boards (BMBs) installed on each of the modules.

08.03.01 Battery charging capacity

The fully charged battery contains a minimum amount of usable energy when new, based on the battery type/option fitted to the vehicle.

08.03.02 Self-discharge information

The self-discharge rate of the High Voltage battery is likely to be less than 0.5% per month.

08.03.03 Description of thermal management system

The Tesla battery pack contains an integrated cooling system to ensure that the individual cells are maintained at, or close to, their optimum operating temperature. Incorporated in the vehicle system is an inline heating element to raise and a chiller to lower the pack temperature, when required.

08.03.04 Definition of end-of-life

The battery pack end-of-life shall be determined by Tesla's local service centers with Proper inspection and test methods.

08.03.05 Description of battery disposal plan

Tesla's lithium ion battery packs do not contain heavy metals such as lead, Cadmium, or mercury. They are exempt from hazardous waste disposal standards in the USA under the Universal Waste Regulations. However, they do contain recyclable materials, and Tesla plans to recycle all battery packs removed from vehicles.

Tesla highly recommends that all battery packs be taken to local Tesla service facilities and recycled by Tesla or Tesla authorized agencies, so that the battery packs can be recycled in a safe and efficient manner.

If disposing independently, without return to Tesla, then the owner must assume responsibility for recycling in a safe and legal manner. If an owner does assume this responsibility, Tesla recommends consulting with the appropriate local, state or federal authorities to determine the appropriate methods for disposal and recycling. Keep in mind that disposal regulations may vary dependent on location.

For more information on the recycling of Tesla custom battery packs, please call Tesla Customer Service at 1-877-79TESLA (1-877-798-3752).

08.04 DESCRIPTION OF CONTROLLER / INVERTER

The drive inverter performs several critical functions in the Tesla Model Y including torque control, power and torque limit enforcement, and status monitoring. The drive inverter is an integral part of the drive unit.

08.05 DESCRIPTION OF TRANSMISSION

The transmission is a fixed ratio, mechanical, transversely mounted gearbox with integral final drive (transaxle configuration).

The shift lever is mounted to the steering column. The lever has five detents— that can select Reverse, Neutral, Drive, Cruise and Autopilot (if equipped). Selecting either forward or reverse position enables drive current to the motor to generate the appropriate torque. There is no physical reverse gear needed.

In addition, the lever has a park button which is used to operate the electrically-actuated park brake.

Transmission Shift lever - Steering column

8.06 DESCRIPTION OF CLIMATE CONTROL SYSTEM

General Specifications:

The Model Y climate control modes include Defrost, Panel and Floor (or any combination of these three). The system consists of two panel vents, two front row floor vents, defroster vent, second row floor vents, second row console vents with positive air shut off and turning vane manual control.

08.06.01 Electric cabin heater

The heater unit incorporating a variable speed electric fan is located in the front of the chassis tub with ducting directing the blown air to defrosting, face level and floor level vents in the passenger compartment.

The heater element is of the heat pump, drawing HV electrical energy from the battery pack High Voltage.

Tesla Model Y's heat pump reduces the energy required by the HVAC system in both heating and cooling scenarios. The energy required to heat the cabin varies by weather and occupant comfort needs, but on-average consumes approximately 10% of the total energy available for driving. However, even moderately cold weather (0°C), consumption can increase to 25% or more. A heat pump consumes a small amount of electrical energy to thermodynamically "upgrade" low-temperature (less useful) thermal energy to higher-temperature (more useful) thermal energy, making it suitable for occupant comfort. That is, for a given electrical power input, a heat pump will return 1 to 5x in useful heating power; an electrical cabin heater provides 1:1 in heating power, and therefore is far less efficient.

Typically, this is accomplished using conventional refrigeration system components, e.g., compressors, valves, heat exchangers and so on, configured or connected together in a specific way. Tesla's heat pump uses conventional components with unconventional flexibility or cycle configuration. A heat pump must generally have a low-temperature source from which to draw energy. Tesla's system enables the heat pump source to be either the power-train coolant loop, e.g., low-temperature waste heat produced naturally by the vehicle while driving, ambient air, the battery thermal mass, the cabin thermal mass, or combinations thereof. Another advantage of this architecture is the ability to reject heat into the battery pack via a liquid-cooled condenser for a limited amount of time during cabin cooling scenarios when the temperature of the battery is modest. Therefore, for most startups with AC on, the relatively cool, well-coupled, large thermal mass serves to lower discharge pressure and therefore reduces compressor input power relative to a conventional air-cooled condenser setup.

Modern automotive heat pump systems using an HFC/HFO refrigerant suffer from low heating capacity in extremely cold ambient conditions, e.g., minus 10°C and below. Therefore, these conventional systems retain an expensive high-voltage cabin heater to cover heating deficits whenever the heat pump capacity is insufficient. Tesla's heat pump system also provides ways to remove a cabin air high voltage PTC heater completely by using the compressor as an electrical heater in specific scenarios. In fact, the electrical power draw capability of the compressor significantly exceeds a typical HV cabin PTC heater capability. This last point is accomplished via Tesla's unique architecture – the cycle is configured in such a way to provide a controlled environment for the compressor, regardless of ambient conditions, and ultimately unlocks the full electrical input power. Therefore, Tesla's thermal system can sometimes operate like a heat pump (heat efficiently) and sometimes like an electrical heater when heat pump capacity is not sufficient for comfort – using the same compressor.

08.06.02 Fuel-fired heater
Not applicable

08.06.03 Air conditioning

The Model Y air conditioner system is an R134a refrigerant consists of a high voltage electric scroll type with integrated inverter with High Voltage Interlock Loop. The compressor Oil is Poly Olefin Ester oil that is non-conducting.

08.06.04 Climate control system logic

Vehicle Controller printed circuit boards activate actuators and responds to evaporator air outlet temperature sensor, heat pump condenser outlet temperature sensor and air duct temperature sensors, as well as user demands from center display.

08.06.05 Tamper resistance of climate control system that includes a fuel-fired heater
Not applicable

08.07 DESCRIPTION OF REGENERATIVE BRAKING SYSTEM
Regenerative braking (RGB) occurs when the driver lifts his foot from the accelerator pedal while the vehicle is moving; the experience is analogous to engine braking on a gasoline-powered car with a conventional manual transmission. The friction braking system is independent of RGB.

The amount of RGB torque generated depends on the accelerator pedal position – largest when the accelerator pedal is fully released, decreasing as the pedal is depressed, reaching zero torque when the pedal reaches its neutral torque position (a position that is a function of vehicle speed). The max RGB deceleration also varies depending on vehicle speed. The maximum RGB profile is defined as a target total deceleration rate as a function of vehicle speed. The max RGB profile is tailored to everyday driving conditions, which typically exhibit higher deceleration rates at lower speeds.

When the battery pack is near maximum capacity, regenerative braking function will be limited to ensure the maximum capacity of the battery is not exceeded. Any RGB limiting will be ramped in gradually to allow the driver to adapt to the changing RGB performance. When the battery pack is below 0 degrees, RGB will not be allowed because the batteries are not rated to accept charge below this temperature. Any RGB limiting will be ramped in gradually to allow the driver to adapt to the changing RGB performance. The vehicle notifies the driver of any limits on the regenerative braking function.

08.08 DESCRIPTION OF VEHICLE ELECTRICAL SUPPLY EQUIPMENT (CHARGER)

The Tesla Model Y is capable of accepting energy either from a permanent facility installed at the owners location or from many readily available power outlets when 'on the road'.

Optional - The dedicated High Power Connector (HPC) can be purchased separately from the vehicle and a certified electrician will confirm the capabilities of the residential supply circuit at the vehicle owner's location. Confirmation of a satisfactory residential electrical Supply will lead to the installation of a hard-wired HPC unit, this will expedite vehicle charging at the most efficient rate. The HPC can supply available current up to a maximum of 80 amps and incorporates electronic systems that communicate with the vehicle control systems to indicate the maximum available current so that the vehicle can determine the amount and rate of charge required. But the current standard on-board charger is limited to 48A. So the charging duration is 8.5 hrs. at the rate of 48 Amps.

Standard - Charging at rates lower than or equal to 32A can also be achieved via a mobile connector. The universal mobile connector is included as standard in the purchase of every Model Y and is an individual cable that connects the vehicle to any available domestic power outlet and can deliver current to a maximum of 32 Amps. The Mobile Connector incorporates similar electronic circuitry as the HPC to communicate with the vehicle and manage the charging process. The charging duration is 12 hrs. at the rate of 32 Amps.

The vehicle is also capable of accepting DC current up to 525A from an off-board charger (Supercharger).

08.08.01 Proper recharging procedures

The charging system adjusts automatically to the available AC line voltage, frequency and current, within limits. The charging system in the vehicle works in conjunction with either of the three external charging stations; the permanently installed HPC, the permanently installed supercharger or the portable Mobile Connector.

Anytime the EV Inlet door is opened, the vehicle will prepare to enter CHARGE state. Once the user connects either supply cable to the vehicle, the charging system signals to the vehicle that it is ready to deliver the charge. The vehicle locks the cable onto the vehicle and then indicates that it is ready to accept energy and charging will commence. Failure of any of these steps will result in fault condition and lack of **full charging capability**. Vehicle could still charge on low power if handle lock is not engaged.

Prepare to charge state

Low Power Charging Indication

High Power Charging Indication

If the battery temperature is near or below freezing temperatures, normal charging will not occur. The vehicle will identify this condition and will begin heating the battery coolant and circulating the coolant to raise the battery temperature to enable charge. When the pack temperature rises to a temperature within the allowable charging range, heating will reduce or stop and charging will commence.

08.08.02 Power requirements necessary to recharge vehicle

Model Y comes with one on-board charger is capable of a maximum of 48A on 208V or 240V outlets and 12A on 120V outlets.

08.10 OTHER UNIQUE FEATURES (i.e. solar panels)

Not applicable; vehicle is not equipped with any such features.

08.11 DESCRIPTION OF WARNING SYSTEM(S) FOR MAINTENANCE / MALFUNCTION

The Tesla Model Y is equipped with a tell-tale lamp located in the instrument pack to indicate any malfunctions through user alerts e.g. “battery failure” with battery symbol.

The tell-tale is complemented by more detailed information exhibited on the Center Display. An additional driver aid which indicates the nature of the malfunction as well as a wide range of additional vehicle data, such as when maintenance is needed.

08.11.01 Cut-off terminal voltages for prevention of battery damage

The control electronics inside of the Drive Unit and Charger are programmed not to allow the unit to drive the voltage of the battery above or below hard voltage limits. If the battery pack is unable to achieve a desired response from these systems and the voltage reaches above or below a set limit, the two switches inside the battery pack will open, disabling the entire high voltage system in the car.

8.12 DESCTIPTION OF DYNO MODE

Tesla, Inc. implementated user interface (UI) features that enable access to our “Dyno Mode” for all users. This feature is required to be enabled to maintain representative driving controls while testing on a chassis dynamometer.

In order to preserve the proper driving functionality and behavior, Dyno Mode executes the following features:
- Disable Stability Control to ensure no false interaction with the dyno.
- Disable Traction Control to ensure no false interaction with the dyno.
- Disable Active Drive Line Damping to avoid inducing oscillations in the dyno.
- Force the torque split to be as it would be under normal straight-line driving conditions
- Disable Brake Disk Wipe

When the Stability Control and Traction Control systems become faulted, as is the case on a dynamometer where driving is detected but movement is not, regenerative braking is disabled so that unintended braking torque does not lead to loss of traction or control on low friction surfaces. Disabling Stability Control and Traction Control prevents those systems from disrupting regenerative braking behavior, maintaining the most representative driving energy consumption.

Dyno Mode can be activated by the user, according to the steps in the driver's guide.
Dyno Mode can be deactivated by the user by pressing the “Power Off” button within the Safety & Security tab of the UI.

8.13 DESCTIPTION OF COASTDOWN MODE

To engage Coastdown Mode:
1. Press and hold Tesla T to bring up Access Code prompt
2. Type "coastdown"

Vehicle Behavior:
UI will send out a binary signal in the message on the right bus. The thermal controller should consume this message and unconditionally close the louver and turn off the refrigerant system.

Display "COASTDOWN" in cluster where we display other mode info like "VALET" and "CHILL"
Coastdown Mode will turn OFF after drive cycle is complete.

09.00 RUNNING CHANGE VEHICLE DESCRIPTION

Refer to appendix 09.00, if applicable

10.00 ROAD LOAD DATA

See EV-CIS application

11.00 STARTING AND SHIFTING SCHEDULES

11.01 Starting

The Model Y does not have a traditional starter switch and instead has a smart entry system for greater safety and customer convenience. The smart entry system comprises of an authenticated phone (using Bluetooth Low Energy or internet connectivity) or key card (using Near Field Communication), a weight sensor embedded into the driver seat, and the brake pedal.

ENTERING
An authenticated phone can be used to passively unlock the car when connected, in range and a door handle is pulled or trunk release button is pressed.
The Tesla mobile app on an authenticated phone can be used to manually unlock the vehicle.
A key card can be used to unlock the car by scanning the card on the b-pillar.
After a successful key card scan on the b-pillar or center console:
a. Vehicle is authorized to Drive within a reasonable time period. Time period is extended based on additional user interaction which include: driver opening their door, driver sitting down, driver closing their door while seated.
b. If time period is exceeded, upon brake press, instruct driver to rescan key card on the center console to reauthorize Drive.
c. Accessory Mode functions will be available without the user having to rescan their key card.

LOCKING
An authenticated phone can be used to passively lock the car when the phone is disconnected or moved away from the vehicle. This passive function can be disabled in controls on the touchscreen.
The Tesla mobile app on an authenticated phone can be used to manually lock the vehicle.
A key card can be used to lock the car by scanning the card on the b-pillar. There is no passive locking with key cards (car does not auto lock).
Note: Using a key card to lock/unlock will be equivalent to an active lock/unlock—i.e., clicking on the key fob to lock and double-clicking to unlock.

STARTING
If successful interaction between authenticated phone or the key card and vehicle controller occurs, the system deactivates the immobilizer. Immobilizer deactivation only happens after 2 conditions are met below. The vehicle then enters accessory mode analogous to a "ACC" position on a conventional IC engine. In this mode, low voltage (12V) is supplied to the vehicle allowing operation of the radio and other accessories connected to the accessory rail.

High Voltage (HV) necessary to enable vehicle propulsion is enabled only by the closing of the contactors, which can only be triggered when the following conditions are both satisfied,

1. Authenticated phone or key card is authorized and key code is validated AND
2. Brake pedal is depressed.

By requiring brake pedal activation, along with the appropriate key code, this system ensures the safety of vehicle occupants by not allowing self mobility of the vehicle without the driver providing proper control inputs (i.e., service brake activation) and appropriate driver authorization (i.e., presence of the key code). If either the service brake is not activated or the key code not present, the vehicle controller will not close the contactors and self-mobility is not possible.

If the brake pedal is depressed and the proper key code present, the drive rail will activate (immobilizer deactivates) and allows the vehicle to be shifted out of Park.

11.02 SHIFTING
Not applicable – the vehicle has a single-speed transmission.

12:00 -16:00 RESERVED

17:00 CALIFORNIA REQUIREMENTS

17:01 Statement of Compliance

17.01.01 General Statement

The production vehicles which are subject to registration or sale in the State of California will be, in all material respects, substantially the same in construction as test vehicles which are certified by the California Air Research Board; and will meet all the applicable emissions standards which are promulgated by the California Air Research Board in accordance with Section 43101 of the Health and Safety Code.

Tesla attests that the vehicle emission control label complies with the label durability requirements of the “California Motor Vehicle Emission Control and Smog Index Label Specifications”, Title 13, CCR, Section 1965.

17.01.02 Drivability statement

This statement is no longer included in the California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles (as of January 01 2006); as was the case in previous versions.

17.02 Supplemental data and certification review sheets

See attached

17.03 Engineering evaluation of zero evaporative emissions under any and all operating conditions (for vehicles equipped with fuel-fired heater only)

Not applicable; vehicle is not equipped with fuel-fired heater.

17.05 VEHICLE SAFETY

17.05.01 All Information for safe operation of vehicle

Tesla will submit a copy of the finalized vehicle owner’s handbook by separate letter when it becomes available.

17.05.02 Information on safe handling of battery system

HANDLING

Do not short circuit, puncture, incinerate, crush, immerse, force discharge, or expose the battery pack to temperatures outside the specified maximum storage temperature range of -20°C to 60°C.

The battery pack has a nominal operating voltage of 400 VDC. The battery pack is sealed in a rigid metal case and its exterior is isolated from high voltage. Handling the battery pack is electrically safe provided the enclosure remains closed.

The battery pack contains hermetically sealed lithium ion cells that contain a number of chemicals and materials of construction. Risk of exposure to electrode materials and Liquid electrolyte will only occur in cases of mechanical or thermal abuse of the battery Pack.

STORAGE

Do not store the battery pack in a manner that allows terminals to short circuit. Do not place near heating equipment, nor expose to direct sunlight for long periods. The battery pack should only be stored in approved packaging and stacked no more than two (2) packages high. To maintain service life, the battery pack should be stored at a state of charge (SOC) of 15 to 50%.

TRANSPORT
Lithium ion batteries are regulated as Class 9 Miscellaneous dangerous goods (also known as "hazardous materials") pursuant to the International Civil Aviation Organization.

(ICAO) Technical Instructions for the Safe Transport of Dangerous Goods by Air, International Air Transport Association (IATA) Dangerous Goods Regulations, the International Maritime Dangerous Goods (IMDG) Code, European Agreements concerning the International Carriage of Dangerous Goods by Rail (RID) and Road (ADR), and applicable national regulations such as the USA's hazardous materials regulations (see 49 CFR 173.185). These regulations contain very specific packaging, labelling, marking, and documentation requirements. The regulations also require that individuals involved in the preparation of dangerous goods for transport be trained on how to properly package, label, mark and prepare shipping documents.

17.05.03 Description of emergency procedures
HIGH VOLTAGE EXPOSURE
If one of the Tesla products has been visibly damaged or its enclosure compromised, then practice appropriate high voltage preventative measures until the danger has been assessed (and dissipated if necessary).

FIREFIGHTING MEASURES
If a fire or explosion occurs when the battery pack is charging, shut off power to the charger. In case of burning lithium ion fires, flood the area with water. The water may not extinguish them, but will cool the adjacent batteries and control the spread of the fire. CO2, dry chemical and foam extinguishers are preferred for small fires, but also may not extinguish burning lithium ion batteries. Burning batteries will burn themselves out. Virtually all fires involving lithium ion batteries can be controlled with water. When water is used, however, hydrogen gas may be a by-product which can form an explosive
Mixture with air. LITH-X (powdered graphite) or copper powder fire extinguishers, sand, dry ground dolomite or soda ash may also be used. These materials act as smothering agents.

Damaged or opened cells or batteries can result in rapid heating (due to exothermic reaction of constituent materials) and the release of flammable vapors. Water (and other items listed above) disperses heat when applied in sufficient quantity to a fire. Extended heat exposure can lead to ignition of adjacent cells with a potential complete envelopment of the battery pack if not cooled. An extinguished lithium ion battery fire can re-ignite due to the exothermic reaction of constituent materials from broken or damaged cells. To avoid this, remove sources of ignition and cool the burned mass by flooding with (or immersing in) water. Fire-fighters should wear self-contained breathing apparatus. Cells or batteries may flame or leak potentially hazardous organic vapors if exposed to excessive heat, fire or over voltage conditions. These vapors include HF, oxides of carbon, aluminum, lithium, copper, and cobalt. Additionally, volatile phosphorus pentafluoride may form at temperatures above 230° Fahrenheit. Never cut into the sealed battery pack enclosure due to the high voltage and electrocution risks.

If a decision is made to fight a battery fire aggressively, then large amounts of water should be applied from a safe distance with the intent of flooding the battery pack enclosure as completely as possible. Alternatively, if a decision is made to fight a battery fire defensively, then the fire crew should pull back a safe distance and allow the battery to burn itself out. Fire crews may choose to utilize a water stream or fog pattern to protect exposures or control the path of smoke.

FIRST AID MEASURES
Under normal conditions of use, the constituent battery cells are hermetically sealed. Contents of an open (broken) constituent battery cell can cause skin irritation and/or chemical burns. If materials from a ruptured or otherwise damaged cell or battery contact skin, flush immediately with water and wash affected area with soap and water. For eye contact, flush with significant amounts of water for 15 minutes and see physician at once. Avoid inhaling any vented gases. If a chemical burn occurs or if irritation persists, seek medical assistance. Seek immediate medical assistance if an electrical shock or electrocution has occurred (or is suspected).

17.06 Description of fuel-fired heater / fuel tank evaporative system
Not applicable; vehicle is not equipped with fuel-fired heater.

3.03 Vehicle Configuration and sub-configurations

Make	Tesla
Carline	Model Y
Type	Battery Electric Vehicle
Test Group	NTSLV00.0L2Y
Final Drive ratio	1
Emission Control	NA (BEV)
Exhaust	NA (BEV)
Evap	NA (BEV)
Model Type	**Model Y AWD**
Basic Engine code (F/R)	L2Y
Transmission Type / Code	AV/1
Vehicle ID tested	YD122-000067
Vehicle Configuration #	0
Gross Vehicle Weight (lbs)	5216
33% Curb Mass (lbs)	4356
Loaded Vehicle Weight (lbs)	4656
Equivalent Test Weight (lbs)	4750
Wheel / Tire	255/45 R19
Target Road Load A lbf	34.26
B lbf/mph	0.3191
C lbf/mph^2	0.0142
Road Load HP @ 50mph	11.43
Vehicle Configuration #	1
Gross Vehicle Weight (lbs)	5216
33% Curb Mass (lbs)	4356
Loaded Vehicle Weight (lbs)	4656
Equivalent Test Weight (lbs)	4750
Wheel / Tire	255/40 R20
Target Road Load A lbf	33.45
B lbf/mph	0.3860
C lbf/mph^2	0.0127
Road Load HP @ 50mph	11.27

Fuel Economy Data Vehicle (FEDV) Selection Justification – FEDV curb mass vehicle accounts for options that have a greater than 33% take rate and highest sold wheel/tire combination that collectively represents a vehicle configuration / sub configuration that has the largest sales volume within that Model Type. Tesla affirms that the road load power, and the target coefficients are those that are appropriate for the ETW of the vehicle.

2022 Model Y AWD

Testing Guide

Introduction of Model Y AWD

LAST EDITED

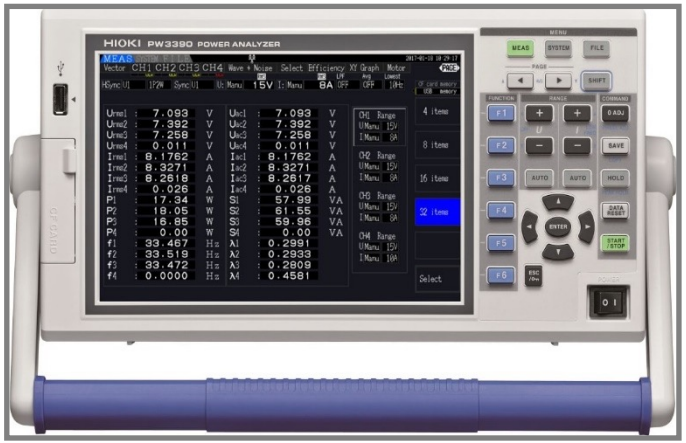
V2. February 10, 2022

Installing External Current Clamps - Requirements

1. Hioki current probes
   - Two 500 A probes
   - One 200 A probe
   - One 20 A probe

[Note: Hioki current probes should be zeroed out before installation to get accurate readings]

2. Hioki Power Analyzer
   - Minimum 4 channel input



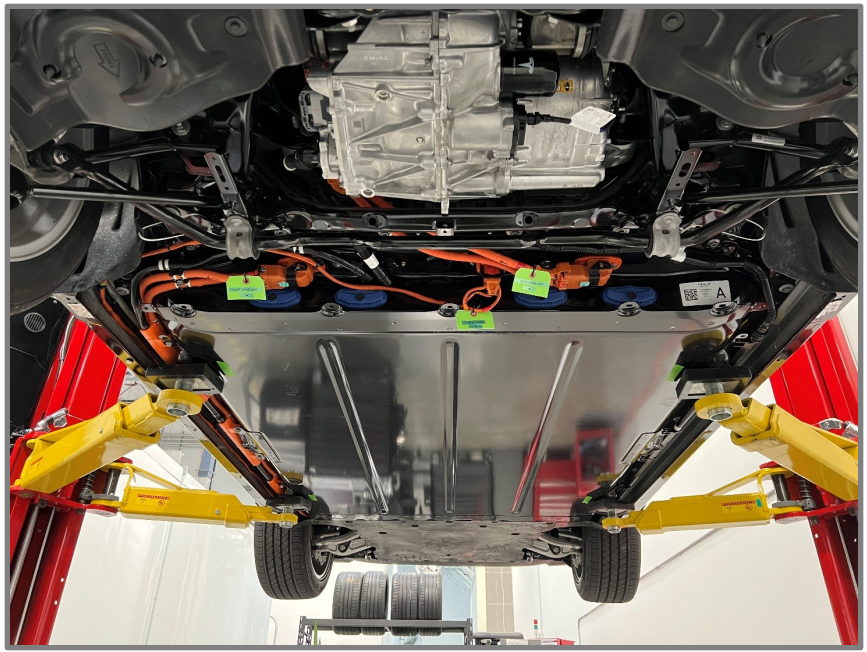
Installing External Current Clamps – Lifting Vehicle

Lifting pads highlighted

To install current clamps on the Model Y, it is recommended to first lift the vehicle with a 2-post lift to better access the HV output cables from the battery.

1. Position the vehicle centrally between the lift posts
2. Position the front and rear lifting arm pads under the vehicle lift points on the HV battery as shown.
3. Raise the vehicle slightly and check again that all 4 pads are in the correct position.
4. Raise the vehicle to the necessary service height, and then engage any lift safety locks

HV Cable General Locations



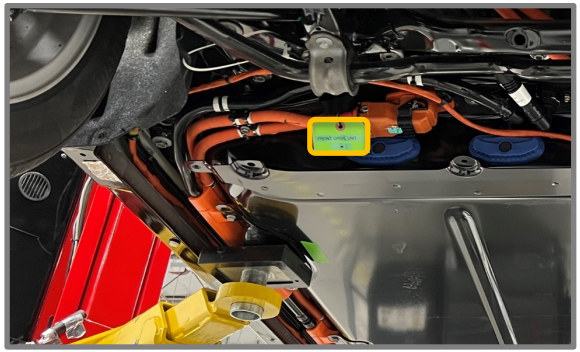
- Viewed from the rear of the vehicle, 3 HV cables are visible. The heat pump, rear drive unit and front drive unit.

- Viewed from the right rear door, the DCDC output HV cable.

External Current Measurement – Front Drive Unit

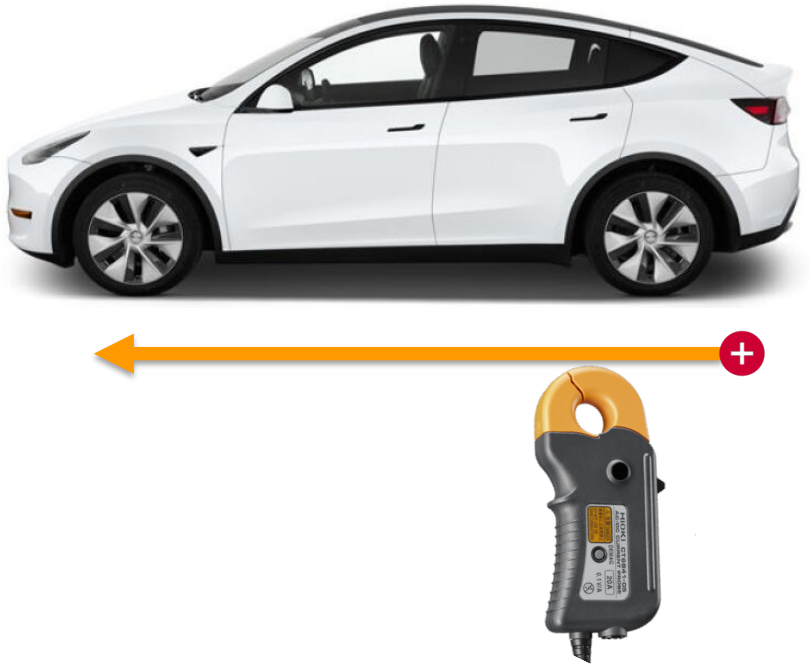
Read more about handling and potential risks in the last slide.

- Located near the left rear wheel, the front drive unit HV output needs to be instrumented.
- The front drive unit positive HV cable will be labeled with red electrical tape and green tagged for discharge flow.
- Use a 500 A clamp on this HV cable.

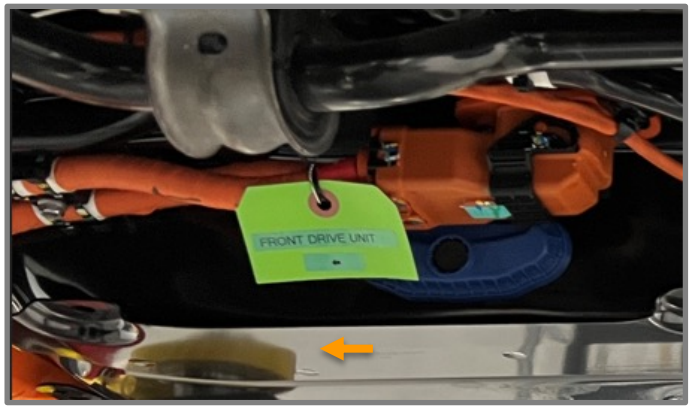


External Current Measurement – Front Drive Unit

Read more about handling and potential risks in the last slide.



- The 500 A clamp should be installed as shown. With the arrow of the current probe facing toward the front of the vehicle.



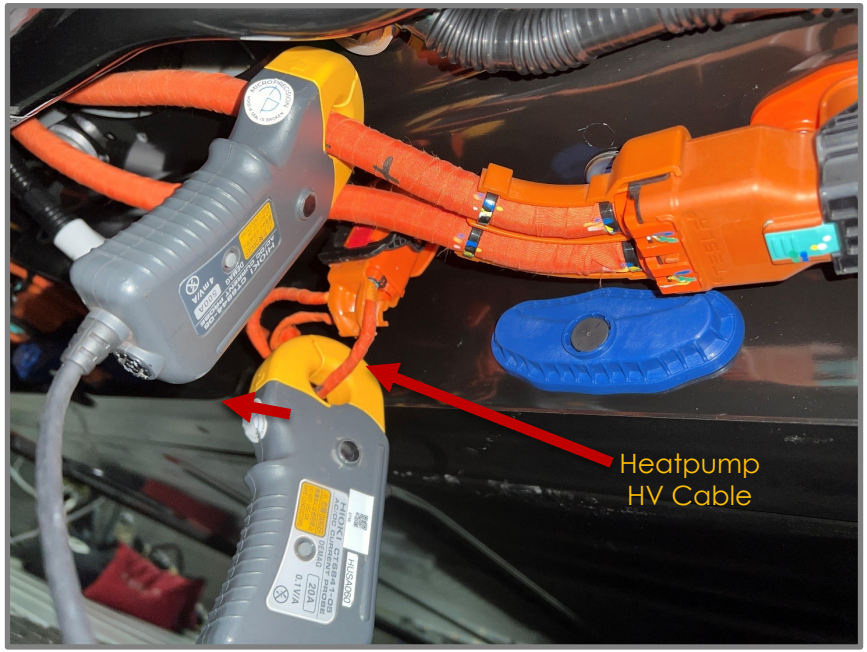
External Current Measurement – Rear Drive Unit

Read more about handling and potential risks in the last slide.

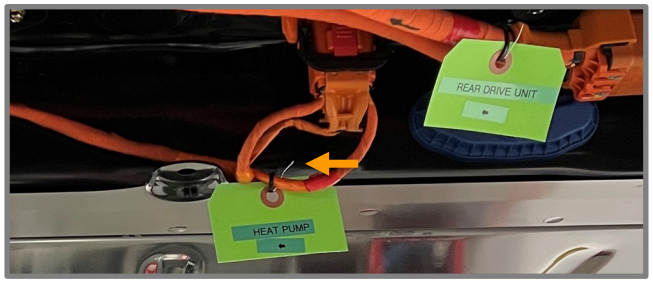
- Located near the right rear wheel, the rear drive unit HV output needs to be instrumented.
- Use a 500 A clamp on the rear drive unit cable. This cable will be labeled with red electrical tape and a green tag to indicate the positive HV cable.
- The current clamp should be installed as shown. With the arrow of the current probe facing toward the rear drive unit.

External Current Measurement – Heat Pump

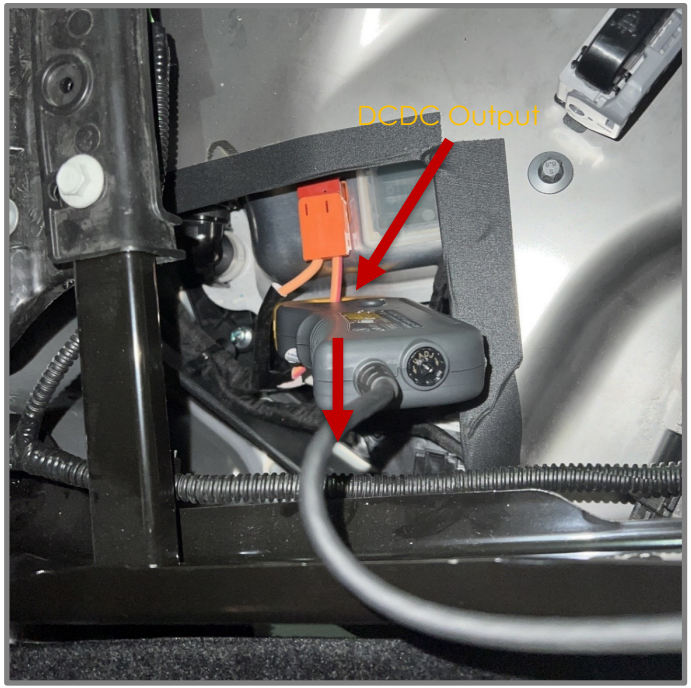
Read more about handling and potential risks in the last slide.



- The heat pump HV cable will need a 200 A clamp to instrument. The heat pump HV wiring will be thinner gauge compared to the rear drive unit HV cable.
- The heat pump positive cable will be labeled with red electrical tape and green tag to indicate the positive HV.
- The current clamp should be installed as shown. With the arrow of the current probe facing toward the left rear wheel.

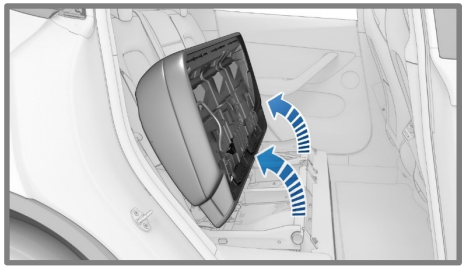


External Current Measurement



Please observe PPE guideline. Do not modify, remove or relocate orange HV shielding or protective cap. Modification has been done to this part of this vehicle in order to provide access to this HV wire.

- Below the right rear passenger seat, the HV battery DCDC output needs to be instrumented.



- Install a 20-Amp clamp on the positive HV cable. The cable will have a red tracer and green tag to indicate polarity. The current clamp should point toward the right rear wheel.

Read more about handling and potential risks in the last slide.

2022 Model Y

Memorator Guide

Memorator Equipment and Software

Memorator's are used to log additional CAN data that cannot be captured via Carlogs.

- Memorator: Kvaser Memorator Pro 2xHS v2
  - Dual channel CAN bus interface and standalone data logger
  - Instruction Manual
- Windows Driver: Kvaser Drivers for Windows
  - Window's 10 drivers needed for all Kvaser CAN hardware
- Software: Kvaser Memorator Configuration Tool
  - Used to configure the Kvaser memorator and extract data recorded

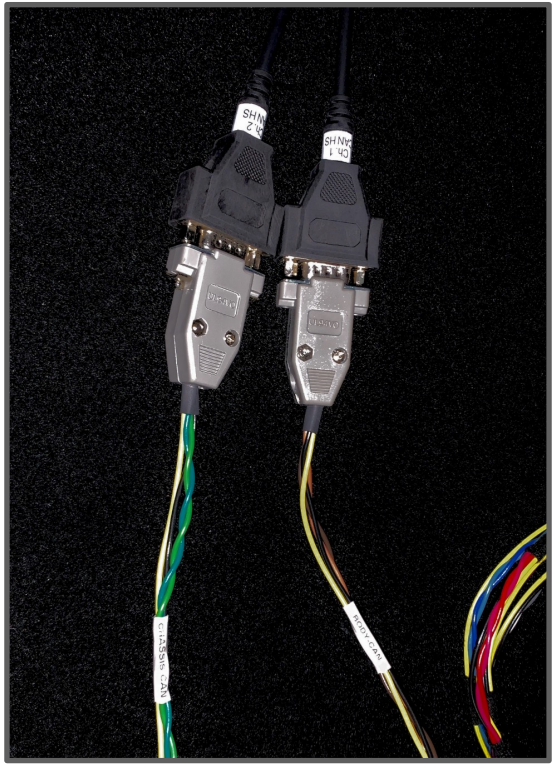
Connecting a Memorator

- The memorator has dual channel inputs.
  - Channel 1 should be connected to Vehicle/Body CAN. Breakout harness provided is labeled.
  - Channel 2 should be connected to Chassis CAN
- A 12 V external power supply can now be installed into the breakout harness.

Connecting a Memorator

Dual Memorator
connected via split cable

Single Memorator connected



Connecting a Memorator

- For the memorator to record, Channel 1 of the modified Tesla CAN breakout harness provides power to the memorator.
- With a configured SD card installed, the LED indicators on the memorator will show:

PWR	**Flashing Green**
CAN 1	**Solid Yellow**
CAN 2	**Solid Yellow**

- This condition indicates that the memorator is logging.

Memorator Troubleshooting

Power LED	Traffic LED	Description
Slow Blink (Yellow)	All off (-)	Waiting for USB configuration
Slow Waver (Green/Yellow)	Slow Waver (Yellow/Red)	Firmware configuration error[1]
Slow Waver (Green/Yellow)	All Slow Blink (Yellow)	Power problem[2]

Table 3: Yellow Power LED shows problems in Interface mode.

Traffic LED	Description
Off (-)	Idle, no CAN traffic
Flash (Yellow)	CAN message received or sent
Flash (Red)	Error frame received
All Fast Blink (Yellow)	Firmware update is in progress
Fast Blink (Red)	CAN channel is error passive
On (Red)[3]	CAN overrun

Table 4: Traffic LED shows CAN bus status in Interface mode and Logger mode.

Power LED	Traffic LED	Description
Running	Running	Device is communicating with Memorator Tools
On (Green)	All Fast Blink (Yellow)	Disk activity such as formatting or firmware update is in progress

Table 5: LED indications when connected to Kvaser Memorator Configuration Tools.

[1] This should not normally happen. If it does, please contact Kvaser support.
[2] This indicates low power supply, such as using an unpowered USB hub.
[3] The red Traffic LED indicating overrun will stay on until the device goes bus off.

- For all memorator troubleshooting info, reference the Kvaser Memorator Pro V2 Manual.
- Most common issues stem from incorrect Channel 1 or 2 connections.
- Verify that an external power has been supplied to the CAN breakout harness.

Model 3/Y 2022

Driver's Guide - Vehicle Settings

Model Y Overview

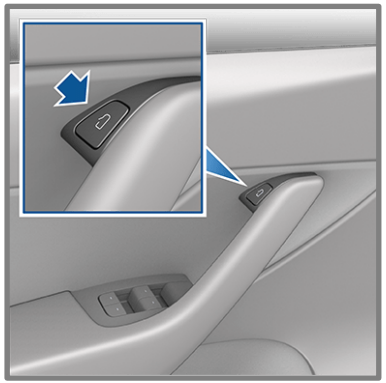
Key Card

- Tesla provides two key cards that communicates with Model Y using short range radio-frequency identification (RFID) signals. This keycard will be used to lock/unlock the vehicle in addition to authenticating drive.

- To use a key card to unlock or lock Model Y, position the card as shown and tap it against the card reader located just below the Autopilot camera on the driver's side door pillar. When Model Y detects the key card, the exterior lights flash, the mirrors unfold or fold depending on the lock state.

- Once inside, power up Model Y by pressing the brake pedal within two minutes of scanning the key card. If you wait longer than two minutes, you must re-authenticate by placing the key card near the card reader located behind the cup holders on the center console.

Doors



Using Exterior Door Handles

- Use your thumb to push the wide part of the door handle. The handle pivots toward you, and you can open the door by pulling the handle or pulling the edge of the door.

Opening Doors from the Interior

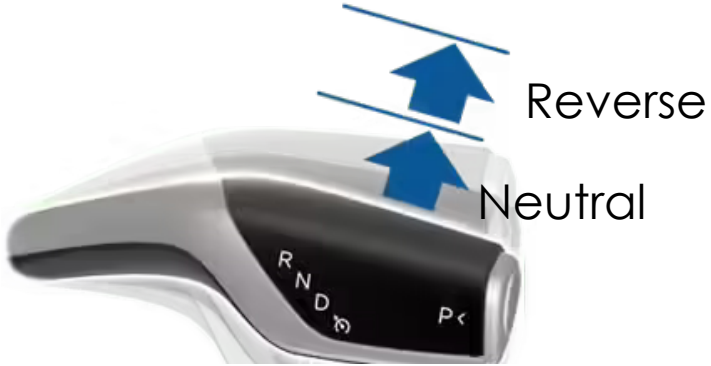
- Model Y doors are electrically powered. To open a door while sitting inside, press the button located at the top of the interior door handle and push the door open.
- To open a front door in the unlikely situation when Model Y has no power, pull up the manual door release located in front of the window switches.

Driving

- When Model Y is in Park, you must press the brake pedal to shift.
- Move the drive stalk up or down to shift into different drive modes.
- **Reverse** - Push the drive stalk all the way up and release.
- **Drive** - Push the drive stalk all the way down and release.
- **Park** - Press the end of the drive stalk while Model Y is stopped.
- Model Y automatically shifts into Park whenever you connect a charge cable or if two or more of the following conditions are met simultaneously while traveling slower than approximately 1.5 mph:

1. The driver's seat belt is unbuckled.
2. The occupancy sensor in the driver's seat does not detect an occupant.
3. The driver's door is opened.

Driving



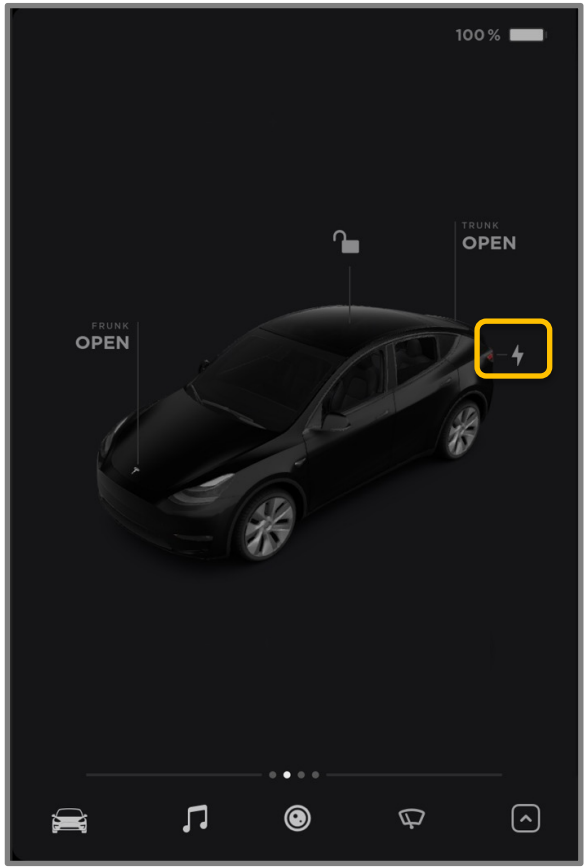
Neutral

- Push the drive stalk up or down to the first position and hold it there for more than 1 second to shift into Neutral.
- During the Coastdown (dyno adaption runs), it is recommended to buckle the passenger seatbelt into the driver's seatbelt buckle as well as latching the driver's front door. This is recommended so the vehicle will not go into park.

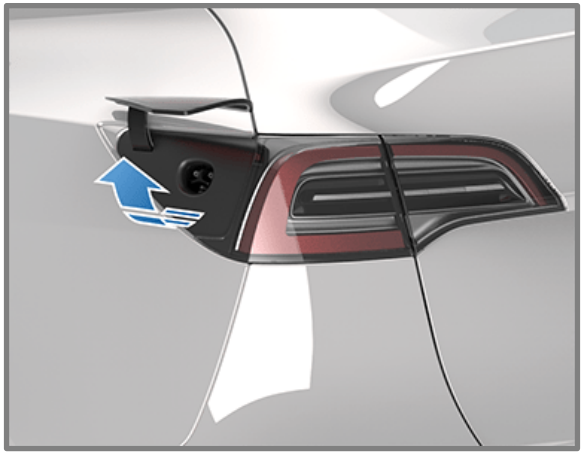
Vehicle Sleep Mode

1. For the Model Y to go into a sleep state, all doors, windows and trunk will need to be fully closed.
2. Exit the vehicle and verify the center display screen is off.
3. Use the keycard to lock the vehicle from the b-pillar card reader
4. When the doors lock, the exterior lights flash once and the mirrors fold inward.
5. Vehicle key card needs to be 15 feet away from the vehicle for vehicle to go to sleep.

Charging



- The charge port is located on the left side of Model Y, behind a door that is part of the rear taillight assembly.
- With Model Y unlocked and in Park, press the charge port door icon on the UI to open the charge
- You can also open the charge port door by pressing on the charge port door.



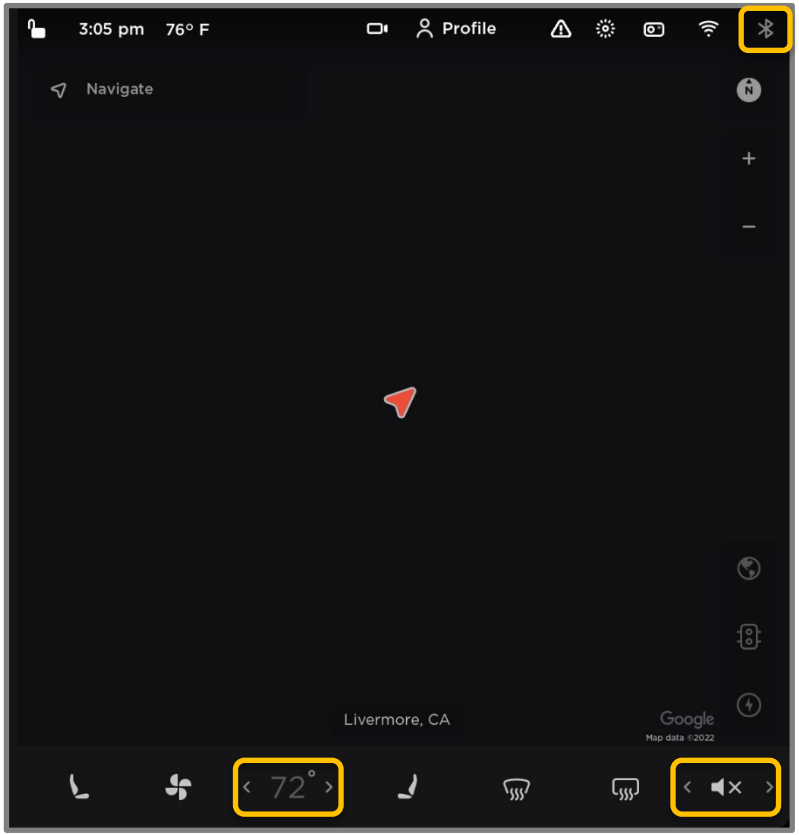
Charging

- With a charge cable inserted, the exterior charge port will illuminate depending on the status of charge and the vehicle.

Charge Port Light

- WHITE (OR LIGHT BLUE): The charge port door is open. Model Y is ready to charge, and the connector is not inserted, or the charge port latch is unlocked, and the connector is ready to be removed.
- BLUE: Model Y detects that a connector has been plugged in.
- BLINKING BLUE: Model Y is communicating with the connector. Either Model Y is preparing to charge, or a charging session is scheduled to begin at a specified future time.
- BLINKING GREEN: Charging is in progress. As Model Y approaches a full charge, the frequency of the blinking slows.
- SOLID GREEN: Charging is complete.
- SOLID AMBER: The connector is not fully plugged in. Realign the connector to the charge port and insert fully.
- BLINKING AMBER: Model Y is charging at a reduced current.
- RED: A fault is detected, and charging has stopped.

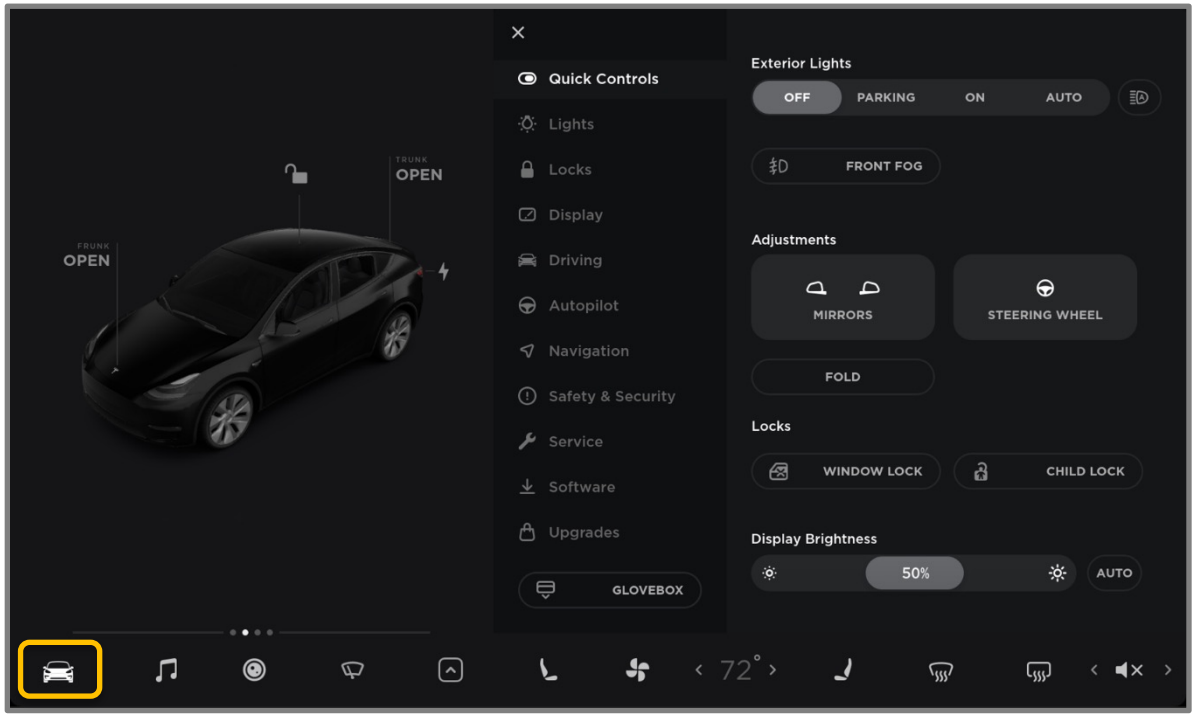
Main Screen Settings



- Prior to testing, all vehicle settings must be confirmed. The vehicle settings should match all slide illustrations.
- On the main touchscreen the following should be checked.

1. No Bluetooth device is connected
2. HVAC is turned **OFF**
    - HVAC Set Temperature will be grayed out indicating HVAC is OFF
3. Media Volume is turned **OFF**

Quick Controls

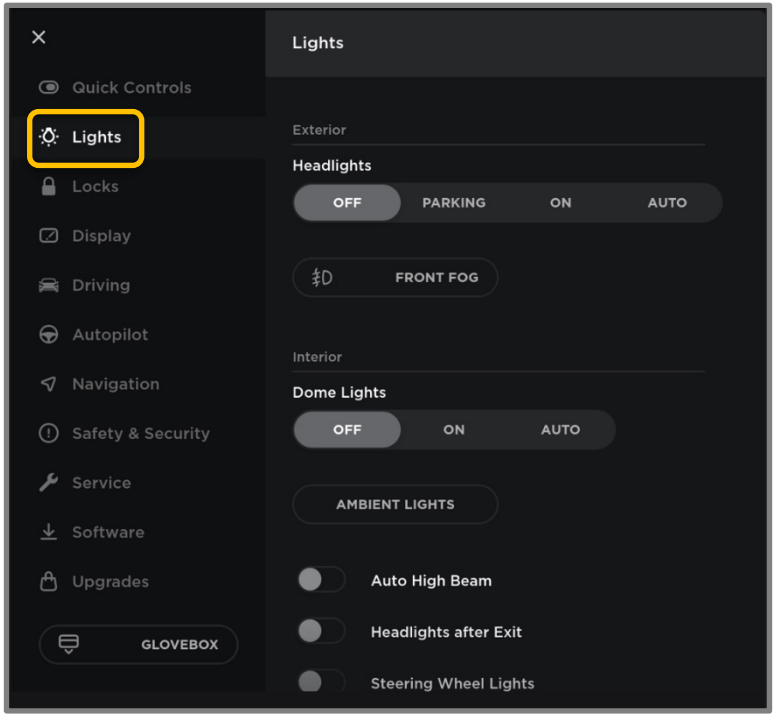


Quick Controls

Quick controls can be accessed by pressing the vehicle icon in the lower left-hand corner of the touch screen.

1. Exterior lights should be turned **OFF** when the vehicle is put into drive before the starting a drive cycle.
2. Front Fog - **Off**
3. Mirror Fold – **Off**
4. Window Lock – **Off**
5. Child Lock - **Off**
6. Brightness - **50%.**

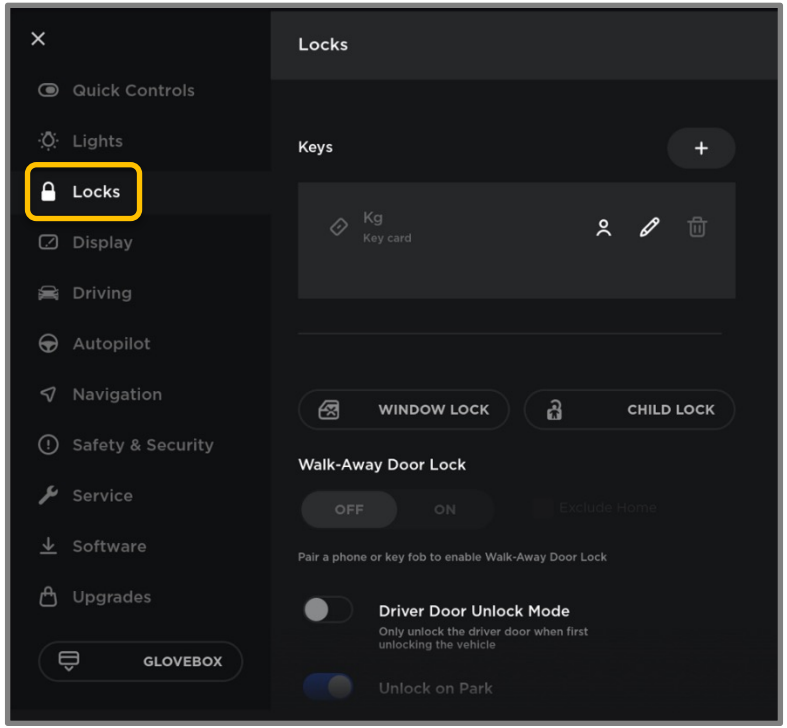
Lights



Under lights, match all the settings with the illustration

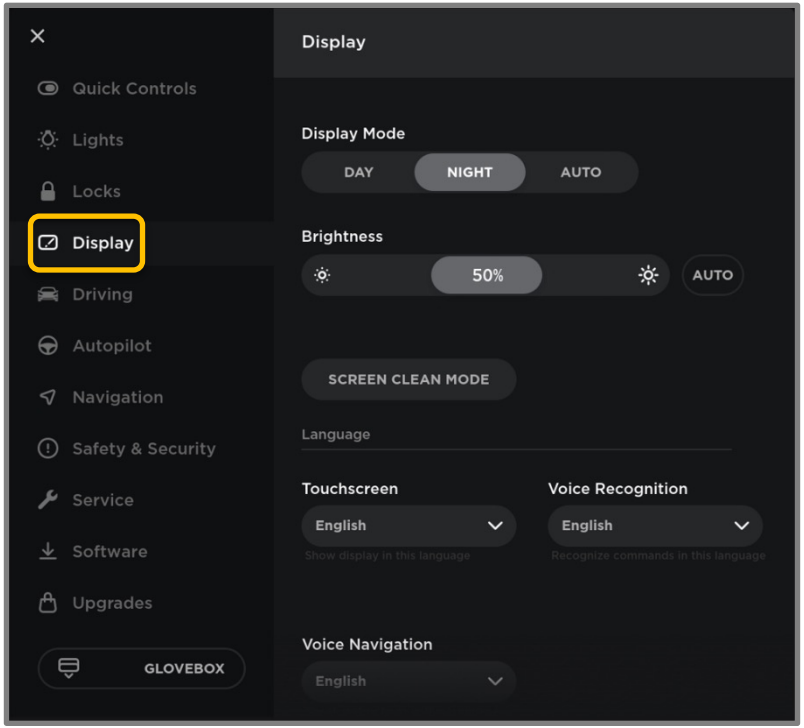
1. Front fog lights - **Off**
2. Dome lights – **Off**
3. Ambient Lights - **Off**
4. Auto high beam - **Off**
5. Headlights after exit - **Off**
6. Steering wheel lights - **Off**

Locks



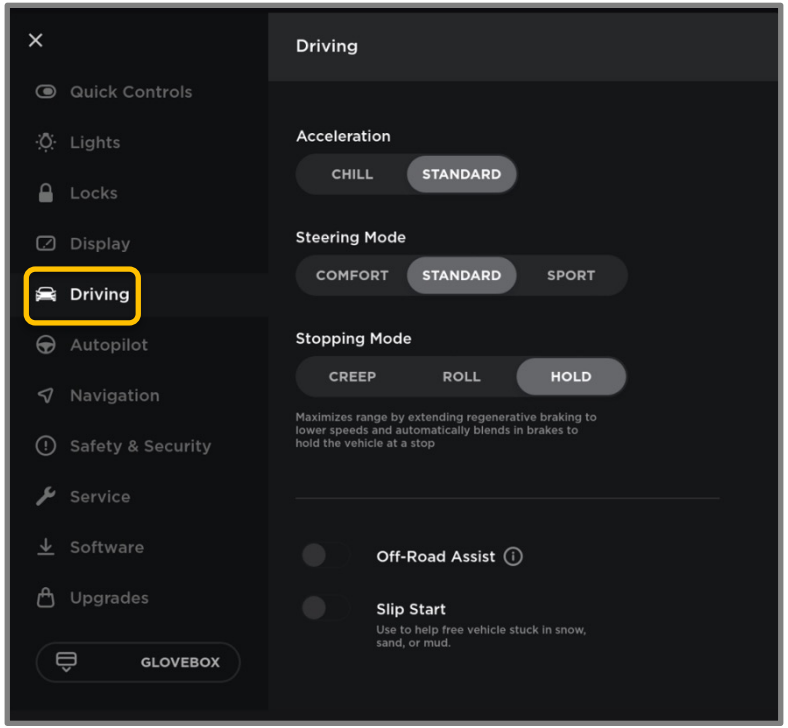
1. Walk-away door lock – **Off**
2. Driver Door Unlock Mode - **Off**
3. Unlock on park - **ON**
4. Car left Open Notifications – **Off**
5. Lock Confirmation Sound – **Off**
6. Close windows on Lock – **Off**
7. VCSEC Feature 1 - **Off**
8. VCLEFT Feature 1 – **Off**

Display



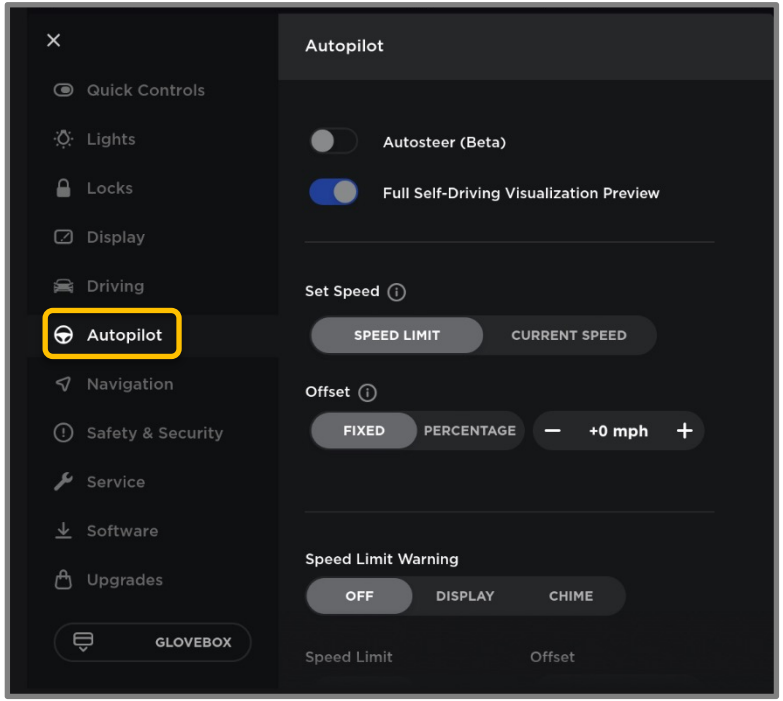
1. Display Mode - **Night**
2. Brightness - **50%**
3. Brightness, Auto - **Off**

Driving



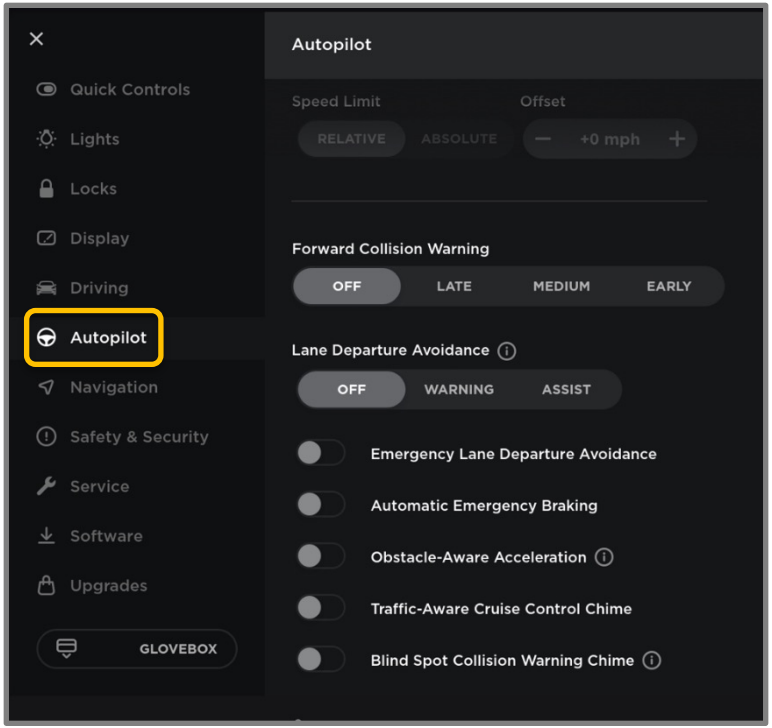
1. Acceleration – **Standard**
2. Steering Mode – **Standard**
3. Stopping Mode – **Hold**
4. Off Road Assist – **Off**
5. Slip Start - **Off**

Autopilot



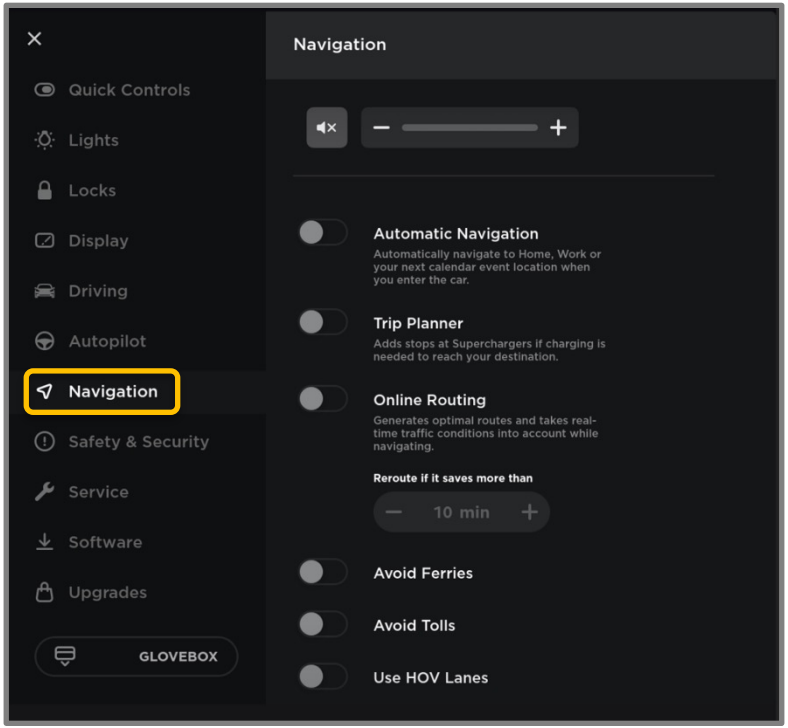
1. Autosteer – **Off**
2. Full Self-Driving Preview – **ON**
3. Set Speed – **Speed Limit**
4. Offset – **Fixed, 0 mph**
5. Speed Limit Warning - **Off**

Autopilot



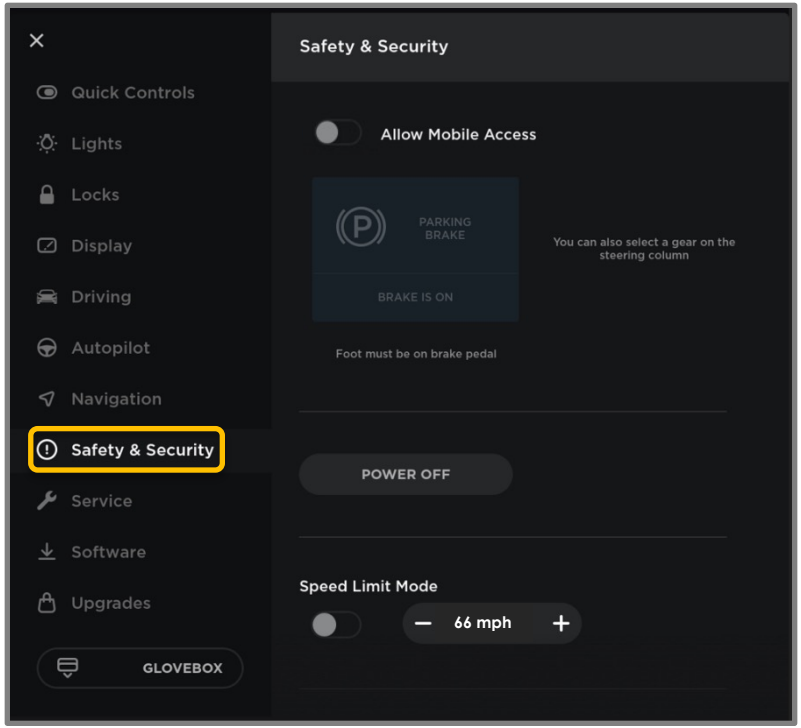
6. Forward Collision Warning – **Off**
7. Lane Departure Avoidance – **Off**
8. Emergency Lane departure – **Off**
9. Automatic Emergency Braking – **Off**
10. Obstacle-Aware Acceleration – **Off**
11. Traffic-Aware Cruise Control Chime – **Off**
12. Blind Spot Collision Warning Chime - **Off**

Navigation



1. Match the illustration. All settings should be turned off.

Safety & Security

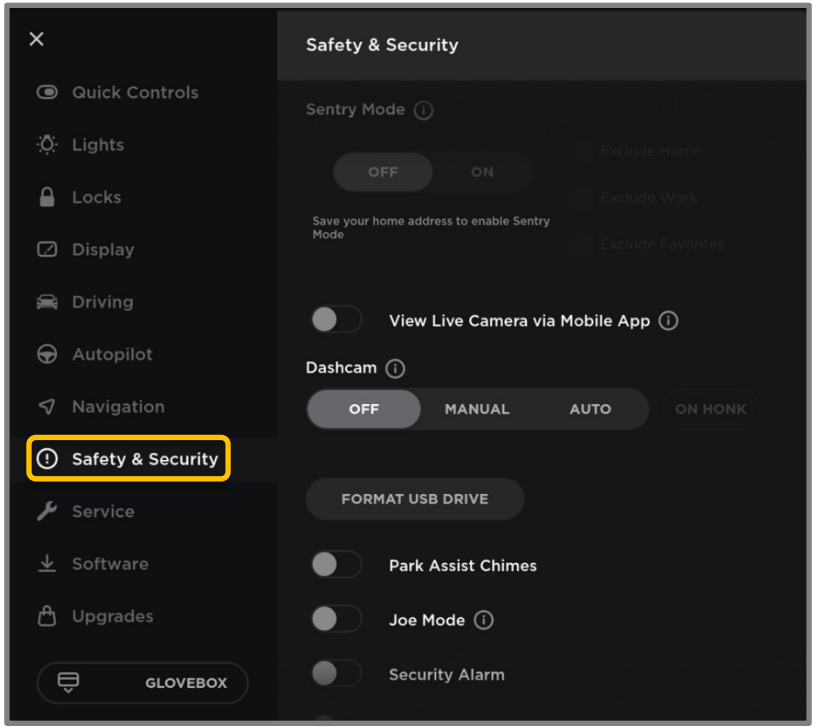


1. Allow Mobile Access - **Off**
2. Speed Limit Mode – **Off**

   – **This setting should be ON only during the constant speed sections of MCT.**

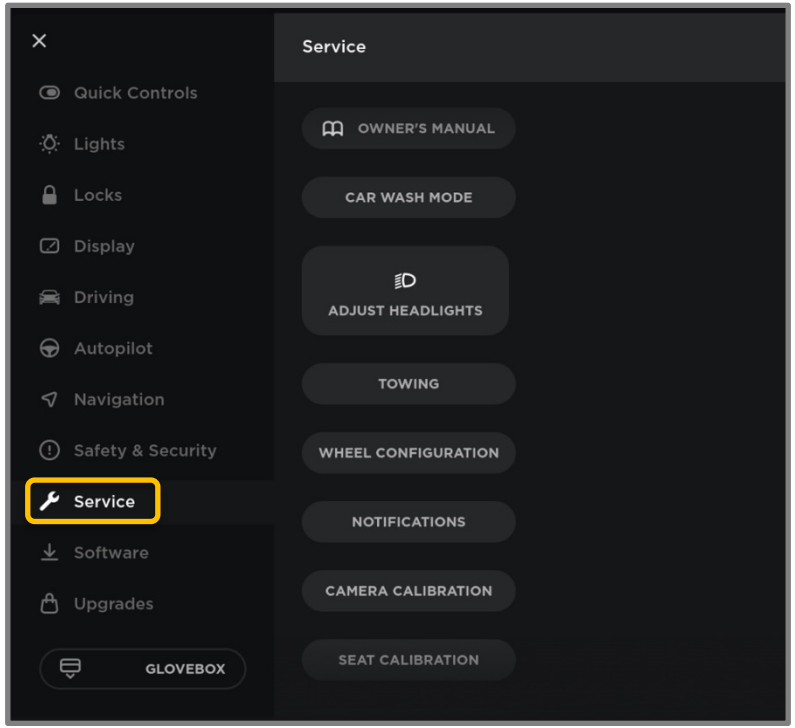
   • **Speed limit should be set to 66 mph.**

Safety & Security



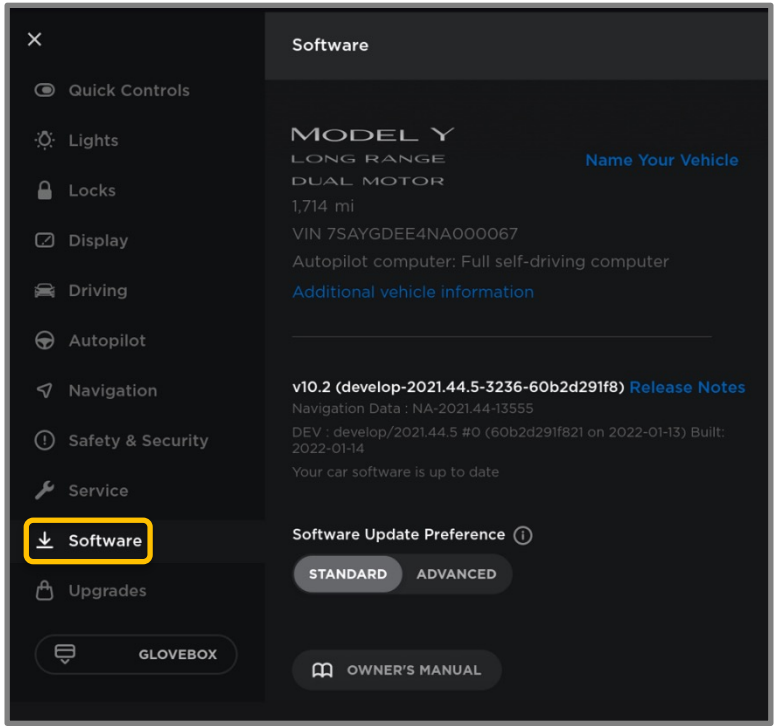
3. Sentry Mode – **Off**
4. Live Camera via Mobile App – **Off**
5. Dashcam – **Off**
6. Park Assist Chimes – **Off**
7. Joe Mode – **Off**
8. Security Alarm – **Off**
9. Cabin Overheat Protection - **Off**

Service



1. No settings need to be set in the Service tab.

Software



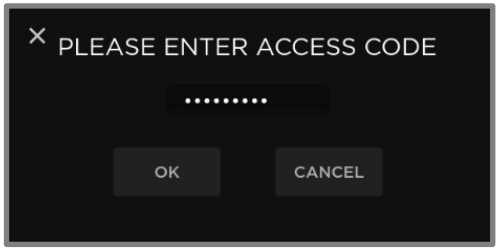
1. Software update preference should be set to **Standard**

Dyno Mode

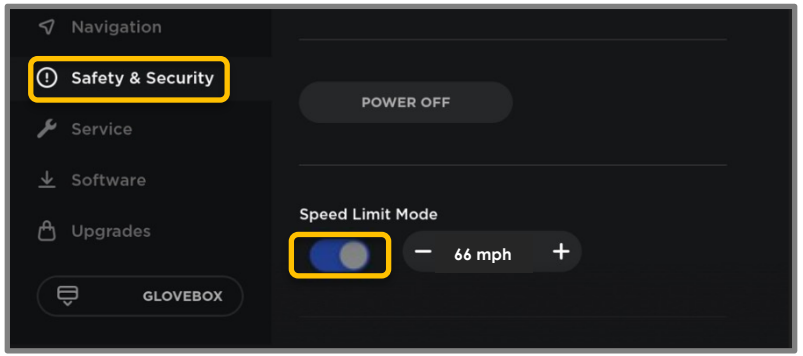
1. With the vehicle in park, DYNO mode will need to be enabled before starting derivations.

2. Press and hold the “Y” in Model Y for 5 seconds to allow the access code window appear.

3. When the access code window appears, type DYNOTEST to enter dyno mode. When done successfully, DYNO MODE will appear across the UI.



Driving MCT



- All vehicle settings should be checked before the driver starts the dynamic sections or constant speed.
- The vehicle's headlights should be turned **OFF** once again when the vehicle is put into drive.
- When driving the first and second dynamic section of MCT, the UI speed limiter should be turned **OFF**.
- During both constant speed sections of MCT, the UI speed limiter can be turned **ON , set to 66 mph,** to help the driver maintain vehicle speed of 65 mph.

Performing operations and procedures mentioned on the marked slides should only be done by personnel who:

A. Are properly trained and qualified for High Voltage (HV) vehicles,
B. Wear appropriate PPE,
C. Understand the risks mentioned below.

Safety risks:

- Electrocution
- Electric shock
- Burns
- Loss of consciousness or loss of muscle control
- Death

Certification Summary Information Report

Manufacturer	Tesla, Inc.	**Manufacturer Code**	TSL
Test Group	NTSLV00.0L2Y	**Evaporative/Refueling Family**	--
Certificate Number	--	**CARB Executive Order #**	--
Certificate Issue Date	--	**Certificate Revision Date**	--
Certificate Effective Date	--	**Conditional Certificate**	--
CSI Revision #	--	**CSI Submission/Revision Date**	02/23/2022 12:37:34 PM
Model Year	2022		

Test Group Information

CSI Type	Update for Correction	**Running Change Reference Number**	1
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	NTSLEEVNNL2Y	**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	02/17/2022	**CAP2000 Conditional Certificate?**	N/A
Independent Commercial Importer?	--	**Alternative Fuel Converter Certificate?**	--
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**	NTSLV00.0L2Y
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	--		
Mfr Exhaust / Evap Standards Comments	--		

Certification Summary Information Report

Test Group	NTSLV00.0L2Y	**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	47 - Model Y Performance AWD	California + CAA Section 177 states	All Wheel Drive	Automatic	1	No
Tesla, Inc.	1 - Tesla Motors	44 - Model Y AWD	Federal	All Wheel Drive	Automatic	1	No
Tesla, Inc.	1 - Tesla Motors	45 - Model Y Long Range AWD	Federal	All Wheel Drive	Automatic	1	No
Tesla, Inc.	1 - Tesla Motors	47 - Model Y Performance AWD	Federal	All Wheel Drive	Automatic	1	No
Tesla, Inc.	1 - Tesla Motors	45 - Model Y Long Range AWD	California + CAA Section 177 states	All Wheel Drive	Automatic	1	No
Tesla, Inc.	1 - Tesla Motors	44 - Model Y AWD	California + CAA Section 177 states	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	--	--	--	--	--	--	--	--	--	--

SFTP LEV-III Official Test Numbers

Test Group Fuel	FTP	US06	SC03
Electricity	--	--	--

Certification Summary Information Report

Test Group	NTSLV00.0L2Y	**Evaporative/Refueling Family**	--

Official Charge Depleting Test Numbers

Test Group Fuel	UDDS	Highway
Electricity	MTSL10067003	MTSL10066998
Electricity	NTSL10071764	NTSL10071765
Electricity	NTSL10073774	NTSL10073775

Hybrid Electric Vehicle And Fuel Cell Information

Rechargable Energy Storage System	Battery(s)	**Rechargable Energy Storage System, if Other**	--
Battery Type	Lithium Ion	**Number of Battery Packs**	1
Total Voltage of Battery Packs	360	**Battery Energy Capacity**	235
Battery Specific Energy	180	**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)	4		
Motor/Generator Type 1	AC 3 PHASE PERMANENT MAGNET	**Rated Motor/Generator Power**	200
Motor/Generator Type 2	AC Induction	**Rated Motor/Generator Power**	91
Motor/Generator Type 3	AC Induction	**Rated Motor/Generator Power**	133
Motor/Generator Type 4	AC 3 PHASE PERMANENT MAGNET	**Rated Motor/Generator Power**	179
Mfr Fuel Cell Description	--		
Fuel Cell On-Board H2 Storage Capacity (kg)	--	**Usable H2 Fill Capacity (kg)**	--
Mfr Hybrid Electric/ Electric Vehicle Comments	2022 MY Model Y AWD Carline; Base Front - 91 kW; Rear - 200 kW Perf Front - 133 kW; Rear - 179 kW		

Certification Summary Information Report

Test Group	NTSLV00.0L2Y	**Evaporative/Refueling Family**	--

Emission Data Vehicle Information

Vehicle ID / Configuration	YD122-000067 / 0	**Manufacturer Vehicle Configuration Number**	0
Original Test Group Name	NTSLV00.0L2Y	**Original Evaporative/Refueling Family**	--
Original Test Vehicle Model Year	2022		

Vehicle Model

Represented Test Vehicle Make	Tesla	**Represented Test Vehicle Model**	Model Y AWD

Leak Family Details

Leak Family Identifier	--	**Leak Family Name**	--

Drive Sources and Fuel System Details

Drive Source and Fuel#	Drive Source	Fuel
1	Electric Motor	Electricity

Hybrid Indicator	No		
Multiple Fuel Storage	--	**Multiple Fuel Combustion**	--
Fuel Cell Indicator	No	**Rechargeable Energy Storage System Indicator**	Yes
Rechargeable Energy Storage System	Battery(s)	**Rechargeable Energy Storage System, if 'Other'**	--
Off-board charge Capable Indicator	Yes		
Odometer Correction -- Initial	1	**Odometer Correction Factor**	1
Odometer Correction Sign	- = System Miles is equal to (Test odometer reading - Initial system miles) * Correction factor		
Odometer Correction Units	Miles		
Engine Code	L2Y	**Rated Horsepower**	390
Displacement (liters)	0.001		
Air Aspiration Method	Naturally Aspirated	**Air Aspiration Method, if 'Other'**	
Number of Air Aspiration Devices	--	**Air Aspiration Device Configuration**	--
Charge Air Cooler Type	--	**Drive Mode While Testing**	All Wheel Drive
Shift Indicator Light Usage	Not eqipped	**Aged Emission Components**	4,000 (mi)
Curb Weight (lbs)	4356	**Equivalent Test Weight (pounds)**	4750
GVWR (lbs)	5216	**N/V Ratio**	108
Axle Ratio	1		
Transmission Type	Automatic	**# of Transmission Gears**	1
Transmission Lockup	No	**Creeper Gear**	No

Dynamometer Coefficients:

	Target Coefficients			Set Coefficients			
Coefficient Category	**A (lbf)**	**B (lbf/mph)**	**C (lbf/mph**2)**	**A (lbf)**	**B (lbf/mph)**	**C (lbf/mph**2)**	**EPA Calculated Total Road Load Horse Power for City/Highway/Evap Coefficients**
City/Highway/Evap	34.26	0.3191	0.0142	-7.79	0.3	0.0112	11.4

Emission Control Device Comments No Emissions Control Device - Pure Electric

Certification Summary Information Report

Test Group	NTSLV00.0L2Y	**Evaporative/Refueling Family**	--

Manufacturer Test Vehicle Comments This is 2022 Model Y AWD; Front Motor Power - 91 kW; Rear Motor Power - 200 kW;

Certification Summary Information Report

Test Group	NTSLV00.0L2Y	**Evaporative/Refueling Family**	--

Test #	**NTSL10073774**	**Test Procedure**	**81 - Charge Depleting UDDS**
Exhaust Test # for this Evap Test	--	**Test Fuel Type**	62 - Electricity
Test Date	02/16/2022	**Fuel**	Electricity
Fuel Batch ID	--	**Fuel Calibration Number**	--
Vehicle Class	LDV/Passenger Car	**DF Type**	EPA Assigned
Verify Test Lab ID	National Vehicle and Fuel Emissions Laboratory		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	2998	**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 Charge Depleting Test Information

Recharge Event Voltage	208	**Recharge Event Energy (kiloWatt-hours)**	76.533
Charge Depleting Range (Calculated miles)	380	**Charge Depleting Range (Actual miles)**	380
All Electric Range Unadjusted (miles)	--	**Derived 5-Cycle Coefficient Model Year**	--
Equivalent All Electric Range (miles)	380		
Number of Charge Depleting Bags/Phases Conducted	4	**Transition Bag/Phase Number**	--

Charge Depleting Bag/Phase

Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result
1	Carbon Monoxide	0
2	Carbon dioxide	0
3	Carbon-Related Exhaust Emissions	0
4	Drive Trace Absolute Speed Change Rating	1.0561
5	Drive Trace Energy Economy Rating	0.8068
6	Drive Trace Inertia Work Ratio Rating	1.8871
7	Manufacturer Fuel Economy	167.32
8	Nitrogen Oxide	0
9	Non-methane organic gases	0
10	Non-methane organic gases plus Nitrogen Oxides	999.999
11	Particulate Matter	0

Manufacturer Test Comments Confirmatory Test results for MY2022 Model Y AWD. Range determined by using SAE J1634 Multi-cycle test procedure. MCT dc wh/mi is attached with EPA application. Added NMOG Test results.

Certification Summary Information Report

Test Group NTSLV00.0L2Y **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	0.0	--	--	--	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	0	Pass
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--

Certification Summary Information Report

Test Group	NTSLV00.0L2Y	**Evaporative/Refueling Family**	--

Test #	**NTSL10073775**	**Test Procedure**	**84 - Charge Depleting Highway**
Exhaust Test # for this Evap Test	--	**Test Fuel Type**	62 - Electricity
Test Date	02/16/2022	**Fuel**	Electricity
Fuel Batch ID	--	**Fuel Calibration Number**	--
Vehicle Class	LDV/Passenger Car	**DF Type**	EPA Assigned
Verify Test Lab ID	National Vehicle and Fuel Emissions Laboratory		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	2998	**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 Charge Depleting Test Information

Recharge Event Voltage	208	**Recharge Event Energy (kiloWatt-hours)**	76.533
Charge Depleting Range (Calculated miles)	342.7	**Charge Depleting Range (Actual miles)**	342.7
All Electric Range Unadjusted (miles)	--	**Derived 5-Cycle Coefficient Model Year**	--
Equivalent All Electric Range (miles)	342.7		
Number of Charge Depleting Bags/Phases Conducted	2	**Transition Bag/Phase Number**	--

Charge Depleting Bag/Phase

Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result
1	Carbon Monoxide	0
2	Carbon dioxide	0
3	Carbon-Related Exhaust Emissions	0
4	Drive Trace Absolute Speed Change Rating	7.21
5	Drive Trace Energy Economy Rating	1.827
6	Drive Trace Inertia Work Ratio Rating	9.082
7	Manufacturer Fuel Economy	150.92
8	Nitrogen Oxide	0
9	Non-methane organic gases	0
10	Non-methane organic gases plus Nitrogen Oxides	999.999
11	Particulate Matter	0

Manufacturer Test Comments Confirmatory Test results for MY2022 Model Y AWD. Range determined by using SAE J1634 Multi-cycle test procedure. MCT dc wh/mi is attached with application.

Certification Summary Information Report

Test Group NTSLV00.0L2Y **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	0.0	--	--	--	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	0	Pass
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--

Certification Summary Information Report

Test Group	NTSLV00.0L2Y	**Evaporative/Refueling Family**	--

Emission Data Vehicle Information

Vehicle ID / Configuration	YD221-R00562 / 0	**Manufacturer Vehicle Configuration Number**	0
Original Test Group Name	MTSLV00.0L2Y	**Original Evaporative/Refueling Family**	--
Original Test Vehicle Model Year	2021		

Vehicle Model

Represented Test Vehicle Make	Tesla	**Represented Test Vehicle Model**	Model Y Performance AWD

Leak Family Details

Leak Family Identifier	--	**Leak Family Name**	--

Drive Sources and Fuel System Details

Drive Source and Fuel#	Drive Source	Fuel
1	Electric Motor	Electricity

Hybrid Indicator	No		
Multiple Fuel Storage	--	**Multiple Fuel Combustion**	--
Fuel Cell Indicator	No	**Rechargeable Energy Storage System Indicator**	Yes
Rechargeable Energy Storage System	Battery(s)	**Rechargeable Energy Storage System, if 'Other'**	--
Off-board charge Capable Indicator	Yes		
Odometer Correction -- Initial	1	**Odometer Correction Factor**	1
Odometer Correction Sign	- = System Miles is equal to (Test odometer reading - Initial system miles) * Correction factor		
Odometer Correction Units	Miles		
Engine Code	L2Y	**Rated Horsepower**	418
Displacement (liters)	0.001		
Air Aspiration Method	Naturally Aspirated	**Air Aspiration Method, if 'Other'**	
Number of Air Aspiration Devices	--	**Air Aspiration Device Configuration**	--
Charge Air Cooler Type	--	**Drive Mode While Testing**	All Wheel Drive
Shift Indicator Light Usage	Not eqipped	**Aged Emission Components**	4,000 (mi)
Curb Weight (lbs)	4416	**Equivalent Test Weight (pounds)**	4750
GVWR (lbs)	5712	**N/V Ratio**	108.4
Axle Ratio	9.04		
Transmission Type	Automatic	**# of Transmission Gears**	1
Transmission Lockup	No	**Creeper Gear**	No

Dynamometer Coefficients:

	Target Coefficients			Set Coefficients			
Coefficient Category	**A (lbf)**	**B (lbf/mph)**	**C (lbf/mph**2)**	**A (lbf)**	**B (lbf/mph)**	**C (lbf/mph**2)**	**EPA Calculated Total Road Load Horse Power for City/Highway/Evap Coefficients**
City/Highway/Evap	45.49	0.172	0.016	-1.41	0.0982	0.0145	12.5
Cold CO	50.04	0.1892	0.0176	-14.85	0.0424	0.0142	N/A

Certification Summary Information Report

Test Group	NTSLV00.0L2Y	**Evaporative/Refueling Family**	--

Emission Control Device Comments No Emissions Control Device - Pure Electric

Manufacturer Test Vehicle Comments This is 2021 Model Y Performance AWD; Front Motor Power - 133 kW; Rear Motor Power - 179 kW;

Test #	**MTSL10067005**	**Test Procedure**	**2 - CVS 75 and later (w/o can. load)**
Exhaust Test # for this Evap Test	--	**Test Fuel Type**	62 - Electricity
Test Date	09/17/2020	**Fuel**	Electricity
Fuel Batch ID	--	**Fuel Calibration Number**	--
Vehicle Class	LDV/Passenger Car	**DF Type**	EPA Assigned
Verify Test Lab ID	Tesla Kato		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	1795	**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)	3.2301	--
DT-EER (Drive Trace Energy Economy Rating)	3.0731	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	5.2995	--
MFR FE (Manufacturer Fuel Economy)	19.7981	170.2183543
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 MY2021 Model Y Performance AWD. AC wh/mi @ 50 % SOC - Bag 1 - 222.98; Bag 2- 190.28; Bag 3 - 215.37; Bag 4 - 187.66; Test Start Odometer Reading 3275 Test Start Propulsion System Mileage 1795

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	0	Pass
CA	150,000 miles	California ZEV	CO	0.0	--	--	--	0	--	0	0	Pass

Certification Summary Information Report

Test Group	NTSLV00.0L2Y	**Evaporative/Refueling Family**	--

Test #	**MTSL10066999**	**Test Procedure**	**3 - HWFE**
Exhaust Test # for this Evap Test	--	**Test Fuel Type**	62 - Electricity
Test Date	09/17/2020	**Fuel**	N/A
Fuel Batch ID	--	**Fuel Calibration Number**	--
Vehicle Class	N/A	**DF Type**	EPA Assigned
Verify Test Lab ID	Tesla Kato		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	1795	**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)	6.9986	--
DT-EER (Drive Trace Energy Economy Rating)	0.9719	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	8.7448	--
MFR FE (Manufacturer Fuel Economy)	20.8356	161.7424024
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 MY2021 Model Y Performance AWD. The HFET result from the full discharge MCT is used for the 2-part and 5-part calculations. AC wh/mi - 208.36; Test Start Odometer Reading 3275 Test Start Propulsion System Mileage 1795

Certification Summary Information Report

Test Group	NTSLV00.0L2Y	**Evaporative/Refueling Family**	--

Test #	**MTSL10067000**	**Test Procedure**	**90 - US06**
Exhaust Test # for this Evap Test	--	**Test Fuel Type**	62 - Electricity
Test Date	09/17/2020	**Fuel**	N/A
Fuel Batch ID	--	**Fuel Calibration Number**	--
Vehicle Class	N/A	**DF Type**	EPA Assigned
Verify Test Lab ID	Tesla Kato		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	1795	**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)	2.1886	--
DT-EER (Drive Trace Energy Economy Rating)	1.4372	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	4.229	--
MFR FE (Manufacturer Fuel Economy)	29.3349	114.880228
NOX (Nitrogen Oxide)	0	--
NMOG (Non-methane organic gases)	0	--

Manufacturer Test Comments Internal Test results (US 06) for MY2021 Model Y Performance AWD. US 06 AC wh/mi @ 50% SOC - City:293.35; Hwy:274.90. Test Start Odometer Reading 3275 Test Start Propulsion System Mileage 1795

Certification Summary Information Report

Test Group	NTSLV00.0L2Y	**Evaporative/Refueling Family**	--

Test #	**MTSL10067001**	**Test Procedure**	**95 - SC03**
Exhaust Test # for this Evap Test	--	**Test Fuel Type**	62 - Electricity
Test Date	09/17/2020	**Fuel**	N/A
Fuel Batch ID	--	**Fuel Calibration Number**	--
Vehicle Class	N/A	**DF Type**	EPA Assigned
Verify Test Lab ID	Tesla Kato		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	1795	**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)	-0.6781	--
DT-EER (Drive Trace Energy Economy Rating)	-0.1283	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	-0.6796	--
MFR FE (Manufacturer Fuel Economy)	23.0537	146.1804396
NOX (Nitrogen Oxide)	0	--
NMOG (Non-methane organic gases)	0	--

Manufacturer Test Comments Internal Test results (SC 03) for MY2021 Model Y Performance AWD. AC wh/mi - 230.54 at 50% SOC. Test Start Odometer Reading 3275 Test Start Propulsion System Mileage 1795

Certification Summary Information Report

Test Group	NTSLV00.0L2Y	**Evaporative/Refueling Family**	--

Test #	**MTSL10066998**	**Test Procedure**	**84 - Charge Depleting Highway**
Exhaust Test # for this Evap Test	--	**Test Fuel Type**	62 - Electricity
Test Date	09/17/2020	**Fuel**	Electricity
Fuel Batch ID	--	**Fuel Calibration Number**	--
Vehicle Class	LDV/Passenger Car	**DF Type**	EPA Assigned
Verify Test Lab ID	Tesla Kato		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	1795	**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 Charge Depleting Test Information

Recharge Event Voltage	208	**Recharge Event Energy (kiloWatt-hours)**	92.213
Charge Depleting Range (Calculated miles)	376	**Charge Depleting Range (Actual miles)**	376
All Electric Range Unadjusted (miles)	--	**Derived 5-Cycle Coefficient Model Year**	--
Equivalent All Electric Range (miles)	376		
Number of Charge Depleting Bags/Phases Conducted	2	**Transition Bag/Phase Number**	--

Charge Depleting Bag/Phase

Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result
1	Carbon Monoxide	0
2	Carbon dioxide	0
3	Carbon-Related Exhaust Emissions	0
4	Drive Trace Absolute Speed Change Rating	4.7478
5	Drive Trace Energy Economy Rating	1.0492
6	Drive Trace Inertia Work Ratio Rating	5.7805
7	Manufacturer Fuel Economy	137.53
8	Nitrogen Oxide	0
9	Non-methane organic gases	0
10	Non-methane organic gases plus Nitrogen Oxides	999.999
11	Particulate Matter	0
12	System End State of Charge Watt-hours	81.052
13	System Start State of Charge Watt-hours	0

Manufacturer Test Comments Internal Test results for MY2021 Model Y Performance AWD. Range determined by using SAE J1634 Multi-cycle test procedure. END-SOC - 81052 wh (System error limited to 4 digits). MCT dc wh/mi is attached with application. Test Start Odometer Reading 3275 Test Start Propulsion System Mileage 1795

Certification Summary Information Report

Test Group NTSLV00.0L2Y **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	0.0	--	--	--	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	0	Pass
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--

Certification Summary Information Report

Test Group	NTSLV00.0L2Y	**Evaporative/Refueling Family**	--

Test #	**MTSL10067002**	**Test Procedure**	**86 - Charge Depleting 20 Degree F FTP**
Exhaust Test # for this Evap Test	--	**Test Fuel Type**	62 - Electricity
Test Date	09/17/2020	**Fuel**	N/A
Fuel Batch ID	--	**Fuel Calibration Number**	--
Vehicle Class	N/A	**DF Type**	EPA Assigned
Verify Test Lab ID	Tesla Kato		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	1795	**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 Charge Depleting Test Information

Recharge Event Voltage	208	**Recharge Event Energy (kiloWatt-hours)**	80.329
Charge Depleting Range (Calculated miles)	253	**Charge Depleting Range (Actual miles)**	253
All Electric Range Unadjusted (miles)	--	**Derived 5-Cycle Coefficient Model Year**	--
Equivalent All Electric Range (miles)	253		
Number of Charge Depleting Bags/Phases Conducted	34	**Transition Bag/Phase Number**	--

Charge Depleting Bag/Phase

Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result
1	Carbon Monoxide	0
2	Carbon dioxide	0
3	Carbon-Related Exhaust Emissions	0
4	Drive Trace Absolute Speed Change Rating	-0.0136
5	Drive Trace Energy Economy Rating	0.3539
6	Drive Trace Inertia Work Ratio Rating	0.1356
7	Manufacturer Fuel Economy	27.932
8	Nitrogen Oxide	0
9	Non-methane organic gases	0
10	Non-methane organic gases plus Nitrogen Oxides	999.999
11	Particulate Matter	0
12	System End State of Charge Watt-hours	70.606
13	System Start State of Charge Watt-hours	0

Certification Summary Information Report

Test Group	NTSLV00.0L2Y	**Evaporative/Refueling Family**	--

Manufacturer Test Comments

Internal Test results(Cold UDDS) for MY2021 Model Y Performance AWD. END SOC is 70606 wh (System error limited to 4 digits) for full discharge. AC wh/mi - Bag 1 - 449.10; Bag 2 - 409.81; Bag 3 - 410.37; Bag - 4- 364.45; 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. Test Start Odometer Reading 3275 Test Start Propulsion System Mileage 1795

Certification Summary Information Report

Test Group	NTSLV00.0L2Y	**Evaporative/Refueling Family**	--

Test #	**MTSL10067003**	**Test Procedure**	**81 - Charge Depleting UDDS**
Exhaust Test # for this Evap Test	--	**Test Fuel Type**	62 - Electricity
Test Date	09/17/2020	**Fuel**	Electricity
Fuel Batch ID	--	**Fuel Calibration Number**	--
Vehicle Class	LDV/Passenger Car	**DF Type**	EPA Assigned
Verify Test Lab ID	Tesla Kato		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	1795	**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 Charge Depleting Test Information

Recharge Event Voltage	208	**Recharge Event Energy (kiloWatt-hours)**	92.213
Charge Depleting Range (Calculated miles)	409	**Charge Depleting Range (Actual miles)**	409
All Electric Range Unadjusted (miles)	--	**Derived 5-Cycle Coefficient Model Year**	--
Equivalent All Electric Range (miles)	409		
Number of Charge Depleting Bags/Phases Conducted	4	**Transition Bag/Phase Number**	--

Charge Depleting Bag/Phase

Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result
1	Carbon Monoxide	0
2	Carbon dioxide	0
3	Carbon-Related Exhaust Emissions	0
4	Drive Trace Absolute Speed Change Rating	2.1351
5	Drive Trace Energy Economy Rating	2.2593
6	Drive Trace Inertia Work Ratio Rating	3.4216
7	Manufacturer Fuel Economy	149.63
8	Nitrogen Oxide	0
9	Non-methane organic gases	0
10	Non-methane organic gases plus Nitrogen Oxides	999.999
11	Particulate Matter	0
12	System End State of Charge Watt-hours	81.052
13	System Start State of Charge Watt-hours	0

Manufacturer Test Comments Internal Test results for MY2021 Model Y Performance AWD. Range determined by using SAE J1634 Multi-cycle test procedure. END-SOC 81052 wh (system gave error limited to 4 digits). MCT dc wh/mi is attached with EPA application. Added NMOG Test results. Test Start Odometer Reading 3275 Test Start Propulsion System Mileage 1795

Certification Summary Information Report

Test Group NTSLV00.0L2Y **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	0.0	--	--	--	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	0	Pass
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--

Certification Summary Information Report

Test Group	NTSLV00.0L2Y	**Evaporative/Refueling Family**	--

Emission Data Vehicle Information

Vehicle ID / Configuration	YD222-231326 / 0	**Manufacturer Vehicle Configuration Number**	0
Original Test Group Name	NTSLV00.0L2Y	**Original Evaporative/Refueling Family**	--
Original Test Vehicle Model Year	2022		

Vehicle Model

Represented Test Vehicle Make	Tesla	**Represented Test Vehicle Model**	Model Y Long Range AWD

Leak Family Details

Leak Family Identifier	--	**Leak Family Name**	--

Drive Sources and Fuel System Details

Drive Source and Fuel#	Drive Source	Fuel
1	Electric Motor	Electricity

Hybrid Indicator	No		
Multiple Fuel Storage	--	**Multiple Fuel Combustion**	--
Fuel Cell Indicator	No	**Rechargeable Energy Storage System Indicator**	Yes
Rechargeable Energy Storage System	Battery(s)	**Rechargeable Energy Storage System, if 'Other'**	--
Off-board charge Capable Indicator	Yes		
Odometer Correction -- Initial	1	**Odometer Correction Factor**	1
Odometer Correction Sign	- = System Miles is equal to (Test odometer reading - Initial system miles) * Correction factor		
Odometer Correction Units	Miles		
Engine Code	L2Y	**Rated Horsepower**	390
Displacement (liters)	0.001		
Air Aspiration Method	Naturally Aspirated	**Air Aspiration Method, if 'Other'**	
Number of Air Aspiration Devices	--	**Air Aspiration Device Configuration**	--
Charge Air Cooler Type	--	**Drive Mode While Testing**	All Wheel Drive
Shift Indicator Light Usage	Not eqipped	**Aged Emission Components**	4,000 (mi)
Curb Weight (lbs)	4381	**Equivalent Test Weight (pounds)**	4750
GVWR (lbs)	5240	**N/V Ratio**	108
Axle Ratio	1		
Transmission Type	Automatic	**# of Transmission Gears**	1
Transmission Lockup	No	**Creeper Gear**	No

Dynamometer Coefficients:

	Target Coefficients			Set Coefficients			
Coefficient Category	**A (lbf)**	**B (lbf/mph)**	**C (lbf/mph**2)**	**A (lbf)**	**B (lbf/mph)**	**C (lbf/mph**2)**	**EPA Calculated Total Road Load Horse Power for City/Highway/Evap Coefficients**
City/Highway/Evap	34.26	0.3191	0.0142	-15.74	0.4104	0.0107	11.4

Emission Control Device Comments No Emissions Control Device - Pure Electric

Certification Summary Information Report

Test Group	NTSLV00.0L2Y	**Evaporative/Refueling Family**	--

Manufacturer Test Vehicle Comments This is 2022 Model Y Long Range AWD; Front Motor Power - 91 kW; Rear Motor Power - 200 kW;

Certification Summary Information Report

Test Group	NTSLV00.0L2Y	**Evaporative/Refueling Family**	--

Test #	**NTSL10071764**	**Test Procedure**	**81 - Charge Depleting UDDS**
Exhaust Test # for this Evap Test	--	**Test Fuel Type**	62 - Electricity
Test Date	08/11/2021	**Fuel**	Electricity
Fuel Batch ID	--	**Fuel Calibration Number**	--
Vehicle Class	LDV/Passenger Car	**DF Type**	EPA Assigned
Verify Test Lab ID	Tesla Kato		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	2265	**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 Charge Depleting Test Information

Recharge Event Voltage	208	**Recharge Event Energy (kiloWatt-hours)**	91.115
Charge Depleting Range (Calculated miles)	446	**Charge Depleting Range (Actual miles)**	446
All Electric Range Unadjusted (miles)	--	**Derived 5-Cycle Coefficient Model Year**	--
Equivalent All Electric Range (miles)	446		
Number of Charge Depleting Bags/Phases Conducted	4	**Transition Bag/Phase Number**	--

Charge Depleting Bag/Phase

Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result
1	Carbon Monoxide	0
2	Carbon dioxide	0
3	Carbon-Related Exhaust Emissions	0
4	Drive Trace Absolute Speed Change Rating	0.2687
5	Drive Trace Energy Economy Rating	-0.3787
6	Drive Trace Inertia Work Ratio Rating	0.4438
7	Manufacturer Fuel Economy	164.8
8	Nitrogen Oxide	0
9	Non-methane organic gases	0
10	Non-methane organic gases plus Nitrogen Oxides	999.999
11	Particulate Matter	0
12	System End State of Charge Watt-hours	80.708
13	System Start State of Charge Watt-hours	0

Manufacturer Test Comments Internal Test results for MY2022 Model Y Long Range AWD. Range determined by using SAE J1634 Multi-cycle test procedure. END-SOC 80708 wh (system gave error limited to 4 digits). MCT dc wh/mi is attached with EPA application. Added NMOG Test results.

Certification Summary Information Report

Test Group NTSLV00.0L2Y **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	0.0	--	--	--	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	0	Pass
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--

Certification Summary Information Report

Test Group	NTSLV00.0L2Y	**Evaporative/Refueling Family**	--

Test #	**NTSL10071765**	**Test Procedure**	**84 - Charge Depleting Highway**
Exhaust Test # for this Evap Test	--	**Test Fuel Type**	62 - Electricity
Test Date	08/11/2021	**Fuel**	Electricity
Fuel Batch ID	--	**Fuel Calibration Number**	--
Vehicle Class	LDV/Passenger Car	**DF Type**	EPA Assigned
Verify Test Lab ID	Tesla Kato		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	2265	**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 Charge Depleting Test Information

Recharge Event Voltage	208	**Recharge Event Energy (kiloWatt-hours)**	91.115
Charge Depleting Range (Calculated miles)	411	**Charge Depleting Range (Actual miles)**	411
All Electric Range Unadjusted (miles)	--	**Derived 5-Cycle Coefficient Model Year**	--
Equivalent All Electric Range (miles)	411		
Number of Charge Depleting Bags/Phases Conducted	2	**Transition Bag/Phase Number**	--

Charge Depleting Bag/Phase

Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result
1	Carbon Monoxide	0
2	Carbon dioxide	0
3	Carbon-Related Exhaust Emissions	0
4	Drive Trace Absolute Speed Change Rating	0.821
5	Drive Trace Energy Economy Rating	-0.1289
6	Drive Trace Inertia Work Ratio Rating	1.1214
7	Manufacturer Fuel Economy	152.06
8	Nitrogen Oxide	0
9	Non-methane organic gases	0
10	Non-methane organic gases plus Nitrogen Oxides	999.999
11	Particulate Matter	0
12	System End State of Charge Watt-hours	80.708
13	System Start State of Charge Watt-hours	0

Manufacturer Test Comments Internal Test results for MY2022 Model Y Long Range AWD. Range determined by using SAE J1634 Multi-cycle test procedure. END-SOC - 80708 wh (System error limited to 4 digits). MCT dc wh/mi is attached with application.

Certification Summary Information Report

Test Group NTSLV00.0L2Y **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	0.0	--	--	--	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	0	Pass
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--

Fuel Properties

Certification Summary Information Report

Test Group	NTSLV00.0L2Y	**Evaporative/Refueling Family**	--

Consolidated List of Standards

Exhaust Standards

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	Federal	**Cert/In-Use Code**	Cert
Vehicle Class	LDV/Passenger Car	**Standard Level**	Federal Tier 3 Bin 0
Fuel	Electricity	**Test Procedure**	Charge Depleting UDDS

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**	Charge Depleting UDDS

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

Certification Summary Information Report

Test Group NTSLV00.0L2Y **Evaporative/Refueling Family** --

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 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

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	--	--	--	--	--	--	0	0

Certification Summary Information Report

Test Group	NTSLV00.0L2Y	**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	NTSLV00.0L2Y	**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	NTSLV00.0L2Y	**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