



RIVIAN AUTOMOTIVE, LLC

Application for Certification - Part 1

2023 Model Year

EPA Manufacturer Code: RIV

Test Group: PRIVT00.0192

Durability Group: N.A.
Evaporative Family: N.A.

Test Group Description:	Battery Electric Vehicle, Dual Motor, Large Battery Pack, Default Drive Mode
Applicable Standards:	U.S. EPA: Tier 3 Bin 0 MDPV CA: ZEV MDV
Carlines Covered:	R1S 20in All-Terrain Dual Large, R1S 21in Dual Large, R1S 22in Dual Large R1T 20in All-Terrain Dual Large, R1T 21in Dual Large, R1T 22in Dual Large
Document Date:	04/28/2023

For Questions, Contact:
S. Zaker, SepZaker@rivian.com



14600 Myford Road
Irvine, CA 92606

Mr. Jim Snyder
Compliance and Innovative Strategies Division
Office of Mobile Sources
Environmental Protection Agency
2000 Traverwood, Ann Arbor, MI 48105

Subject: MY 2023 Rivian Medium-Duty Vehicle Initial Application for issuance of Certificate of Conformity for Test Group PRIVT00.0192.

Rivian believes that all vehicles within this test group comply with all applicable regulations within Code of Federal Regulations Title 40 Parts 85, 86, 600, and California Code of Regulations Title 13.

Vehicle Category:	Medium Duty Passenger Vehicle (8532 lbs. GVW)
Test Group:	PRIVT00.0192
Evaporative Family:	N/A
Federal Standard:	Tier 3 Bin 0
California Standard:	ZEV

Test Group Description:


1 - Rivian R1
9 - 9 Module Battery
2 - 2 AC motors

Vehicles Covered by this certificate:

Rivian R1T 21in Dual Large
Rivian R1S 21in Dual Large
Rivian R1T 22in Dual Large
Rivian R1S 22in Dual Large
Rivian R1T 20in All-Terrain Dual Large
Rivian R1S 20in All-Terrain Dual Large

Your early review and issuance of the certificate will be greatly appreciated. If you have any questions, please email me at sepzaker@rivian.com or my phone number available on CDX.

Sepehr Zakeresfahani
Sr. Manager - Range, Wireless & Material Compliance



04/28/2023





14600 Myford Road
Irvine, CA 92606

Mr. Jim Snyder
Compliance and Innovative Strategies Division
Office of Mobile Sources
Environmental Protection Agency
2000 Traverwood, Ann Arbor, MI 48105

Subject: MY 2023 Rivian Medium-Duty Vehicle OBD letter for issuance of Certificate of Conformity for Test Group PRIVT00.0192.

Rivian is a manufacturer of Battery Electric Vehicle, including R1T and R1S. Battery Electric Vehicles are exempt from OBD II requirements.

Vehicle Category:	Medium Duty Passenger Vehicle (8532 lbs. GVW)
Test Group:	PRIVT00.0192
Evaporative Family:	N/A
Federal Standard:	Tier 3 Bin 0
California Standard:	ZEV

Test Group Description:


1 - Rivian R1
9 - 9 Module Battery
2 - 2 AC motors

Vehicles Covered by this certificate:

Rivian R1T 21in Dual Large
Rivian R1S 21in Dual Large
Rivian R1T 22in Dual Large
Rivian R1S 22in Dual Large
Rivian R1T 20in All-Terrain Dual Large
Rivian R1S 20in All-Terrain Dual Large

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Sep Zaker
Sr. Manager – Range, Wireless, and Material Compliance



04/28/2023





14600 Myford Road
Irvine, CA 92606

Mr. Jim Snyder
Compliance and Innovative Strategies Division
Office of Mobile Sources
Environmental Protection Agency
2000 Traverwood, Ann Arbor, MI 48105

Subject: MY 2023 Rivian Medium-Duty Vehicle Durability letter for issuance of Certificate of Conformity for Test Group PRIVT00.0192.

Rivian is a manufacturer of Battery Electric Vehicle, including R1T and R1S. Battery Electric Vehicles (no tailpipe emissions) are exempt from emissions equipment durability requirements.

Vehicle Category:	Medium Duty Passenger Vehicle (8532 lbs. GVW)
Test Group:	PRIVT00.0192
Evaporative Family:	N/A
Federal Standard:	Tier 3 Bin 0
California Standard:	ZEV

Test Group Description:


1 - Rivian R1
9 - 9 Module Battery
2 - 2 AC motors

Vehicles Covered by this certificate:

Rivian R1T 21in Dual Large
Rivian R1S 21in Dual Large
Rivian R1T 22in Dual Large
Rivian R1S 22in Dual Large
Rivian R1T 20in All-Terrain Dual Large
Rivian R1S 20in All-Terrain Dual Large

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Sep Zaker
Sr. Manager – Range, Wireless, and Material Compliance

 04/28/2023





14600 Myford Road
Irvine, CA 92606

Mr. Steven Hada
Emissions Certification and Compliance Division (ECCD)
Air Resources Board Laboratory
9528 Telstar Avenue, El Monte, CA 91731

Subject: MY 2023 Rivian Medium-Duty Vehicles Initial Application for issuance of an Executive Order for Test Group PRIVT00.0192.

Rivian believes that all vehicles within this test group comply with all applicable regulations within Code of Federal Regulations Title 40 Parts 85, 86, 600, and California Code of Regulations Title 13.

Vehicle Category:	Medium Duty Passenger Vehicle (8532 lbs. GVW)
Test Group:	PRIVT00.0192
Evaporative Family:	N/A
Federal Standard:	Tier 3 Bin 0
California Standard:	ZEV

Test Group Description:


1 - Rivian R1
9 - 9 Module Battery
2 - 2 AC motors

Vehicles Covered by this certificate:

Rivian R1T 21in Dual Large
Rivian R1S 21in Dual Large
Rivian R1T 22in Dual Large
Rivian R1S 22in Dual Large
Rivian R1T 20in All-Terrain Dual Large
Rivian R1S 20in All-Terrain Dual Large

Your early review and issuance of the certificate will be greatly appreciated. If you have any questions, please email me at sepzaker@rivian.com or my phone number available on CDX.

Sep Zaker
Sr. Manager – Range, Wireless, and Material Compliance

 04/28/2023



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01.00.00 Communications

01.01.00 Mailing Information

Rivian Automotive, LLC
14600 Myford Road
Irvine, CA 92606
Attention: Sepehr Zakeresfahani

01.01.01 Certification Information

Rivian Automotive, LLC
14600 Myford Road
Irvine, CA 92606

01.01.02 Responsible official

Primary Contact:
Sepehr Zakeresfahani, Sr. Manager – Range, Wireless, and Material Compliance
sepzaker@rivian.com

02.00.00 Confidential Information

02.01.00 Statement of confidentiality

02.02.00 Test vehicle selection

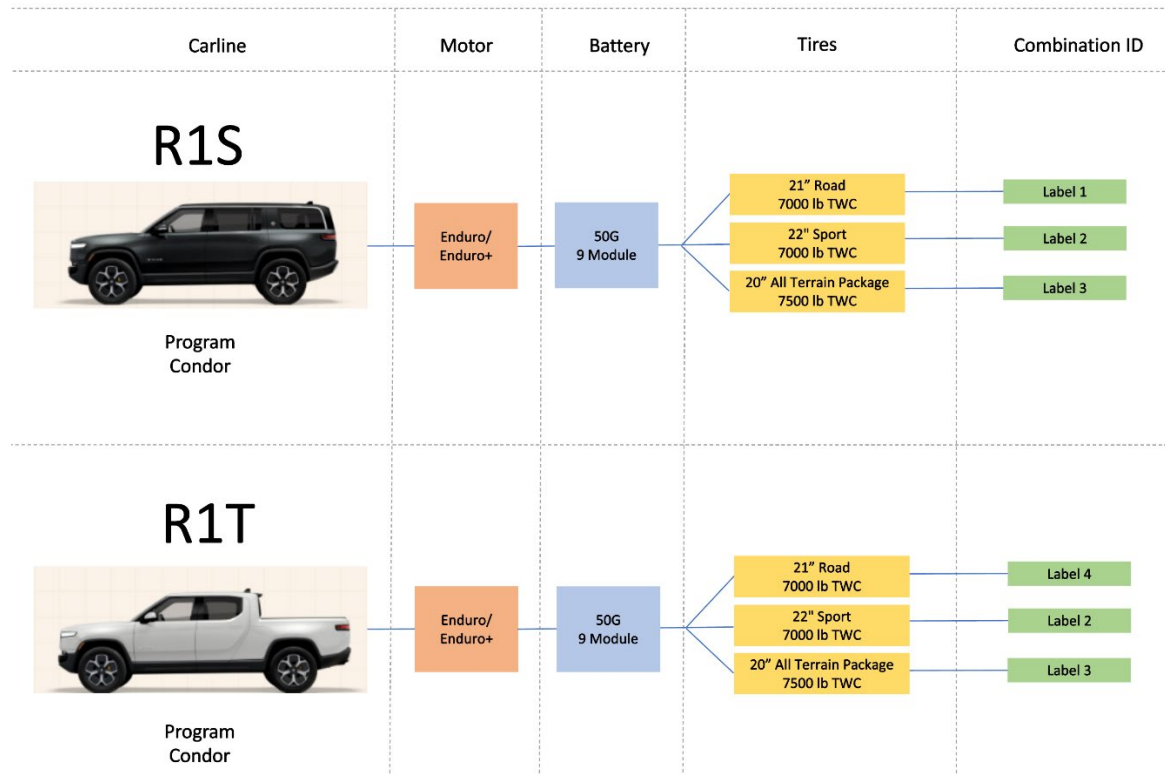
02.03.00 Projected annual model-year sales

03.00.00 Facilities, equipment, and test procedures

03.01.00 (Reserved)

03.02.00 Battery pre-conditioning procedures (if necessary)

03.03.00 Configurations and Sub configurations



Program	A [lbf]	B [lbf/mph]	C [lbf/mph ²]	Test Weight [lbs]	Tire Size
R1S 20" All-Terrain Dual Large	60.02	0.3434	0.02458	7,500	275/65R20
R1S 21" Dual Large	45.22	0.6456	0.01633	7,000	275/55R21
R1S 22" Dual Large	55.14	0.3691	0.02153	7,000	275/50R22
R1T 20" All-Terrain Dual Large	54.71	0.6796	0.01952	7,500	275/65R20
R1T 21" Dual Large	44.76	0.5587	0.01817	7,000	275/55R21
R1T 22" Dual Large	55.67	0.3376	0.02298	7,000	275/50R22

03.04.00 Test Procedures

03.04.01 Range Test Procedures

03.04.02 Description of Coastdown

03.05.00 Special Test Instructions

Vehicle Setup:

Bleyer rigid bar fixation system. Front bar fixed to the front tow hook, and rear bar fixed to the tow hitch receiver.





Instrumentation:

Battery voltage and current measurement were taken using HBM power analyzer & Hioki CT684X-05 current clamps.

- Clamps installed to minimize number of measured current channels.
- Current clamp sizes determined by maximum combined circuit current.

INSTRUMENTATION



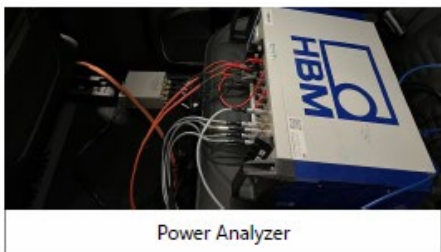
PTC Heater & DCAC – 200A



Front Drive Unit – 500A



DC/DC Converter, AC Compressor & On-Board Charger – 200A



Power Analyzer



Rear Drive Unit – 500A

AC Level 2 240 V/ 48 A (11.5 kW) charger was used for charging.

03.05.00 Statement of Compliance

Every vehicle which is covered by this application conforms to US EPA Federal Tier 3 Bin 0 regulations applicable to new Medium-Duty Vehicles and state of California ZEV regulations applicable to new Medium-Duty Vehicles for the 2023 Model Year.

04.00.00 (Reserved)

05.00.00 (Reserved)

06.00.00 Maintenance

06.01.00 Test vehicle scheduled maintenance

06.02.00 Recommended customer maintenance schedule

Rivian Service is our proactive and flexible approach to vehicle care, centered around uptime for our fleet operators. Through remote diagnostics, a large fleet of mobile service vans staffed with Rivian Technicians and a network of service centers deliver rapid care with minimal inconvenience to the fleet operator. Rivian maintenance intervals are determined by onboard prognostics. Vehicle and environment sensors measure or model the remaining life of maintenance items. Operators are informed when maintenance is approaching or due, scheduling necessary maintenance items only. Our fleet of mobile service vans can perform most vehicle care needs at the operator facilities or wherever the vehicle might be. In many instances, the fleet operator won't even have to be present, so can carry on with their day. Mobile service is available anywhere in the US and Canada. As we expand into other markets, our suite of Rivian vehicle care capabilities, including mobile service, will continue to be a key component of our strategy.

Time till repair (year)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Miles to repair equivalent	12.5K	25K	37.5K	50K	62.5K	75K	87.5K	90K	102.5K	115K
R1T Maintenance Schedule										
Multi-point inspection	X	X	X	X	X	X	X	X	X	X
Drive unit & gearbox fluid lubricant									X	

This table is an example and may not represent the final customer experience.

06.03.00 Lubricants and heater fuels if any

Transmission Oil:

BOT 350 M3 transmission fluid for dry electric drive units.

Typical Characteristics:

Test	Method	Units	
SAE Grade		-	75W
Density @ 15C, Relative	ASTM D1298	g/ml	0.852
Appearance Visual		-	clear
Viscosity, Kinematic 100°C	ASTM D445	mm ² /s	6.3
Viscosity, Kinematic 40°C	ASTM D445	mm ² /s	32
Viscosity Index		-	154
Viscosity, Brookfield @ -40°C	ASTM D2983	mPa.s (cP)	10000
Pour Point	ASTM D97	°C	-51
Flash Point, COC	ASTM D92	°C	226

Coolant: L228

Performance of L288 According to ASTM D3306

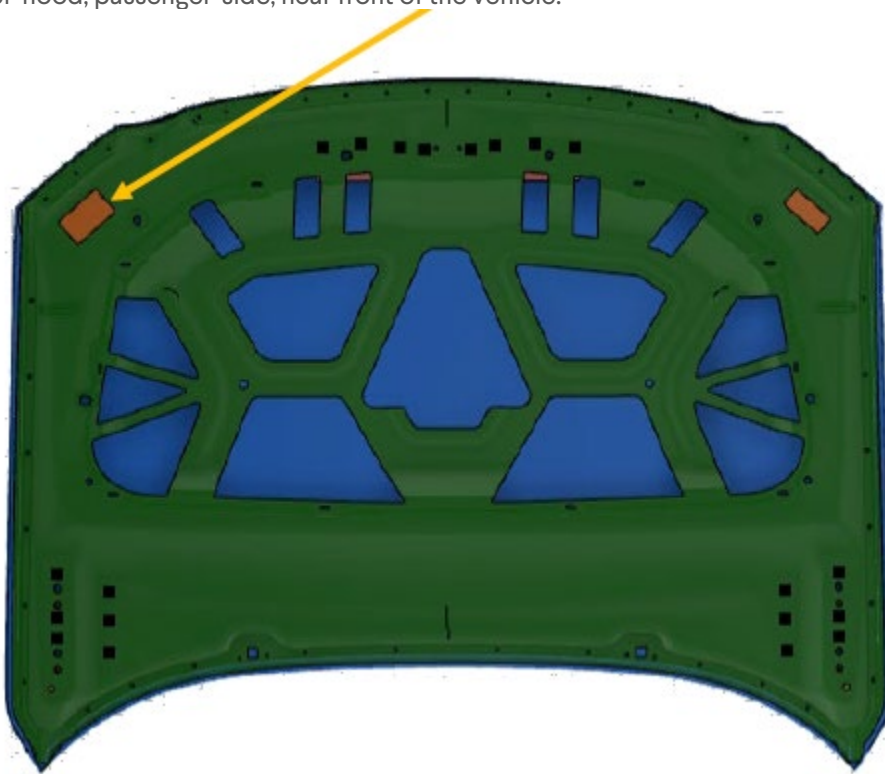
Table 1 – ASTM D3306 Results

Item		ASTM D3306 Type I	CCI L288
Color		Distinctive	Yellow
Relative Density 15.5/15.5°C		1.110 ~ 1.145	1.128
Freezing Point °C	50 vol% in DI water	-36.4 max.	-37
Boiling Point °C	50 vol% in DI water	108 min.	109
Ash content mass%		5 max.	1.7
pH	50 vol% in DI water	7.5 ~ 11.0	7.6
Chloride μ g/g		25 max.	<25
Water mass%		5 max.	3.8
Reserve Alkalinity mL		Report	8.0
Effect on Automotive Finish		No Effect	Pass
Corrosion in Glassware	Weight Loss ⁽¹⁾ mg/Specimen	Copper	10 max. 0.2
		Solder	30 max. 4.3
		Brass	10 max. 1.9
		Steel	10 max. 0.7
		Cast Iron	10 max. 1.4
		Aluminum	30 max. +0.2
Simulated Service Test	Weight Loss ⁽¹⁾ mg/Specimen	Copper	20 max. 0.7
		Solder	60 max. 6.9
		Brass	20 max. 5.9
		Steel	20 max. 0.2
		Cast Iron	20 max. 3.3
		Aluminum	60 max. 0.1
Corrosion of Cast Aluminum Alloys at Heat-Rejecting Surfaces mg/cm ² /week		1.0 max.	0.1
Foaming	Volume mL	150 max.	20
	Break Time s	5 max.	3
Cavitation-Erosion Rating for pitting, cavitation, and erosion of the water pump		8 min.	9

Note (1): A plus sign designates weight gain.

**07.00.00 Vehicle Emission Control Information (VECI) and Environmental
07.01.00 VECI Label locations**

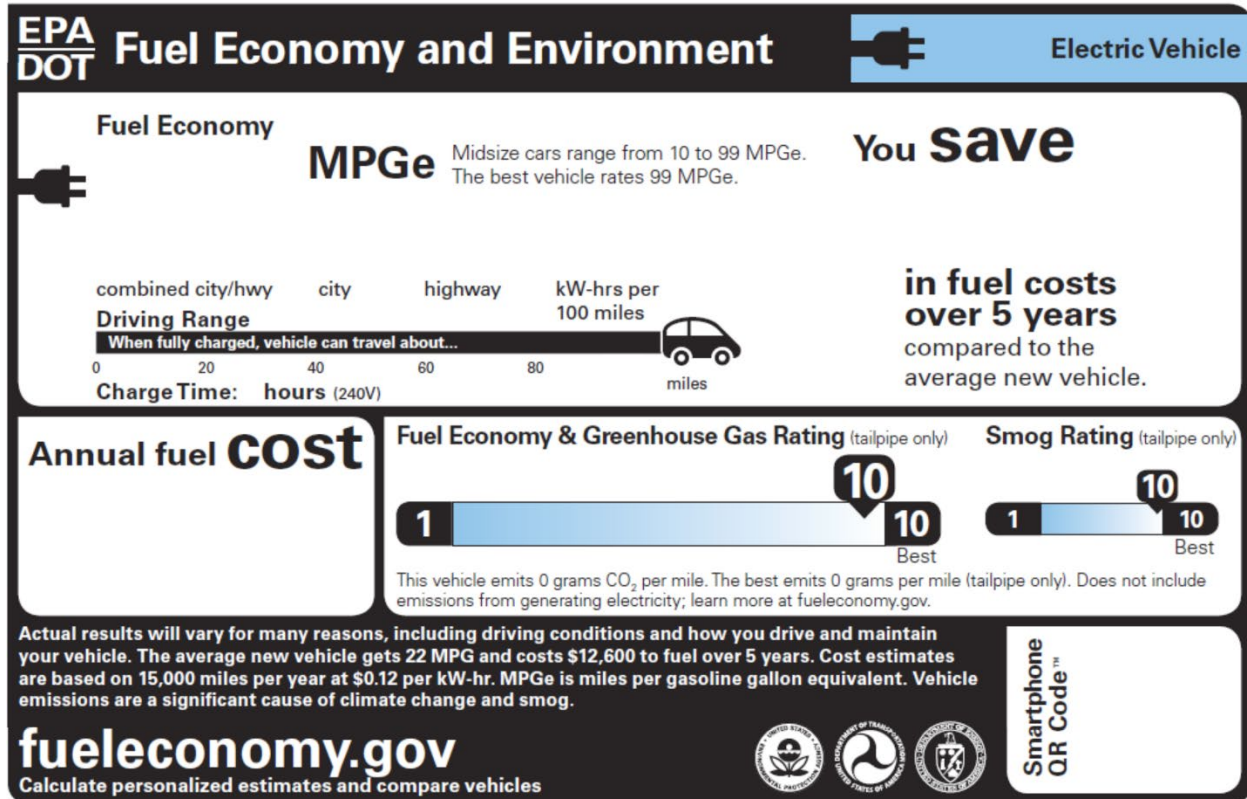
Under-hood, passenger-side, near front of the vehicle.



07.02.00 Sample VECI labels



07.03.00 Sample EP label (Formerly called the Smog Index label)



07.04.00 Statement of compliance

Every vehicle which is covered by this application conforms to US EPA Federal Tier 3 Bin 0 regulations applicable to new Medium Duty Passenger Vehicles and state of California ZEV regulations applicable to new Medium-Duty Vehicles for the 2023 Model Year.

08.00.00 General technical description

08.01.00 Description of Propulsion System

See 08.01.01 through 08.01.06

08.01.01 Description of Vehicle Architecture

08.01.02 Description of Drive Unit Architecture

08.01.03 Description of Motor(s)

08.01.04 Description of Gearbox(s)

08.01.05 Description of Inverter(s)

08.01.06 Description of Drivetrain(s)

08.03.00 Description of Batteries

08.03.01 Battery charging capacity

Battery pack nominal capacity is 360 Ah based on a constant current C/5 discharge rate.

08.03.02 Self-discharge information

Rivian estimates the average self-discharge rate of the battery is likely less than 4% per month.

08.03.03 Description of thermal management system

The thermal management system for the high voltage battery is a liquid coolant system. A pump circulates coolant thru the battery and a refrigerant-cooled chiller to extract heat and lower the temperature of the battery. In cold weather, an in-line heating element is used to heat the coolant to raise the temperature of the battery.

08.03.04 Definition of end-of-life

The battery warranty for in vehicle use is 8 years or 175k miles, whichever occurs first. See section 08.03.05 for information on reuse strategy.

08.03.05 Description of battery disposal plan

Safe battery removal and discharge by Rivian service is recommended. Rivian service will determine which battery components meet standards for reuse. Rivian prioritizes the remanufacture of battery components into equivalent vehicle parts, then consumption in 2nd life applications. For components which do not meet the necessary standards, Rivian approved partners will transport, break down and recycle all materials used within the battery.

Rivian is pursuing UL 1973 certification of vehicle battery modules to enable their reuse for 2nd life grid storage applications. Rivian also plans to develop a process to evaluate the suitability of modules from field returned packs for reuse for grid storage applications in line with UL 1974 (Standard for Evaluation for Repurposing Batteries).

If a facility other than one approved by Rivian intends to dispose of the HV Battery or components, the vehicle owner and/or facility assume the responsibility to comply with any local or federal standards that may apply. A certificate from the recycler should be obtained as proof the materials were properly and legally disposed of.

08.04.00 Description of Controller/Inverter

See Section 08.01.05

08.05.00 Description of Transmission

See Section 08.01.04

08.06.00 Description of climate control system

- Rivian's climate control is a Dual Zone system with Automatic Temperature control.
- HVAC predominantly includes Defrost mode, Panel mode, and Floor mode (or any combination of these three).
- The vehicle could be remotely conditioned to a comfortable climate setpoint using a Mobile Application.
- The system consists of four electronically controlled face vent to direct airflow around passengers.
- The recirculation door is independently controlled by the passengers.
- Auto humidity control.
- Auto/manual blower fan control.
- The system is equipped with Air Conditioning and PTC heater to provide adequate heating and cooling for individual zones.

08.06.01 Electric Heat Pump

N/A

08.06.02 (Reserved)

08.06.03 Climate control system logic

HVAC software has multiple modes which can be selected based on user preference:

- In Manual Mode, the user has complete control on blower speed, temperature, and airflow distribution to face or feet. Recirculation of air is also manually controlled by the user.
- In Auto mode, the software provides adequate heating and cooling requests to control the breathing temperature of both driver and passenger to the requested setpoint. In this mode, the airflow distribution and the blower speeds are automatically selected to maintain the desired temperature from the screen. The software estimates the breathing temperature of individual passenger based on airflow through ducts, In-Cabin sensors, external ambient temperature sensors, and solar load sensors. Recirculation of air inside the cabin is automatically selected based on humidity level inside the cabin.
- Additionally, defrost or demist mode is provided to the user for a clear view while driving. During defog mode, the software supplies conditioned air towards the windshield based on the dew point calculation. If the desired mode is Defrost, the PTC (Positive Temperature Coefficient) heater blows hot air towards the windshield to clear frost.

08.06.04 (Reserved)

08.07.00 Description of Regenerative Braking System

The regenerative braking system can use electric propulsion motor to convert the vehicles kinetic energy to electrical energy which is stored in the vehicles high voltage battery.

08.07.01 Control logic

The regenerative control logic uses two main inputs, acceleration pedal position and vehicle speed to determine a desired regenerative braking torque. Regenerative torque is limited when the vehicle experiences low wheel traction events e.g. ice or snow.

08.07.02 Percentage of braking performed on road by each axle

The percentage of braking performed on road by each axle is constantly changing and redistributing. It is based on the driver demanded torque and has been optimized for vehicle dynamics and range attributes.

08.07.03 Overlap of friction brakes and regenerative braking

One pedal driving by default, and in this mode, fully releasing the pedal yields the maximum regen allowable in the level selected. As the driver manually increases primary service brake pressure and friction braking torque, the vehicle regen level will proportionally ramp down to 0 Nm. The ramp profile is affected by many factors, such as those described in 08.07.01. When auto hold is active and the vehicle approaches standstill, the braking torque will blend from motors to friction brakes.

08.08.00 Description of charger

The Rivian R1T and R1S are capable of conductive charging using Electric Vehicle Supply Equipment (EVSE) off-board chargers for the following charge methods:

- AC Level 1 Charging at 120 V / 12 A
- AC Level 2 Charging at 240 V / 48 A
- DC Fast Charging at up to 210 kW

For Level 1 and Level 2 charging, the vehicle is equipped with an On-Board Charger that will convert the single-phase alternating current from the EVSE into DC current.

The vehicle is equipped with a SAE J1772 Combo CCS inlet, located at the front left corner of the vehicle, and covered by a charge port door.

08.08.01 Proper recharging procedures

Detailed instructions can be found in the owner's guide.

1. Put the vehicle in park (P) or unlock the vehicle.
2. Open the charge port door, located at the front left corner of the vehicle.
3. Plug the charger connector from the Electric Vehicle Supply Equipment (EVSE) into the vehicle's charge inlet so that the connector is fully seated and latched.
4. Follow any instructions provided by the EVSE to begin the charging session.
5. When the charging session is complete, it is indicated by the vehicle's center touchscreen and by an indicator light at the vehicle's charge inlet.
6. Stop the charge via the vehicle touchscreen or button at the charge port, or follow any instructions provided by the EVSE to end the charging session.
7. Remove the charger connector and close the charge port door.

Charging starts automatically. There may be a short delay if the battery requires heating or cooling.

NOTE: When the vehicle is plugged in but not actively charging, it draws energy from the charger instead of using the battery.

The charge port light color indicates the charging status:

- White (solid), Ready.
- White (pulsing), Starting to charge.
- Green (pulsing), Charging.
- Green (solid), Charge Complete.
- Blue (solid), Charge Scheduled.
- Red (solid), Error.
- Red (pulsing), Error.

To stop the charging session:

- Select Stop Charge from Energy menu.
- Unplug the charge cable and return the plug to the charger.

Signs of discharged 12-volt batteries include the following:

- Doors and storage areas will not unlock.
- Vehicle does not respond to key fob.
- Lighting will not illuminate.
- Displays will not power up.

To jump start the 12-volt batteries:

- Remove the trailer hitch cover to access the jump start wire harness at the rear of the vehicle.
- Remove the round access panel to the right of the trailer hitch.
- Pull out the jump start wire harness.
- Connect the positive lead (red) to the red lead on the jump start wire harness and negative lead (black) to the black lead on the jump start wire harness.

08.08.02 Power requirements necessary to recharge vehicle

The Rivian R1T and R1S complies with industry standard SAE J1772 for AC Level 1 (120 VAC) and AC Level 2 (240 VAC) charging.

AC Level 1 charging requires a conventional 110-120 Volt AC grounded outlet capable of the rating of the EVSE to be used. A portable EVSE cord set that is capable of AC Level 1 charging is included with the vehicle.

AC Level 2 charging requires a 220-240 Volt AC outlet capable of the rating of the EVSE to be used.

08.09.00 Accessories which draw energy from the batteries

Energy from the high voltage battery is used to power the electric heater and electric air conditioning. Energy is drawn by an on-board DC-DC converter that converts the high voltage to 14 Volts DC to maintain the low voltage battery system and power 12 Volt systems. Energy is also drawn by an on-board DC-AC converter to provide AC power to NEMA 15-5 outlets located in the vehicle.

08.10.00 Other unique features (e.g. solar panels)

N/A

08.11.00 Description of warning system(s) for maintenance / malfunction

The Rivian vehicles communicate maintenance and malfunction needs to the driver through easy-to-read and timely notifications. If issues do occur, the notification system uses a combination of telltales, texts, and visuals to explain the situation. Our notifications are simple to understand, communicate when the vehicle needs service, and alerts customer if an issue arises. The customer leaves the experience feeling confident knowing the system explains the proper actions to take. Any notifications that appear in the driver's instrument cluster retire to the center display so the driver can recall still relevant notifications at a later time. The Rivian R1S and R1T provide warning tell-tale lights on the driver's display for minor and major defects. A message and audible tone may also be provided for some major defects. Detailed descriptions of the warnings can be found in the owner's guide.

08.11.01 Cut off terminal voltages for prevention of battery damage

Battery management control system is programmed to prevent a state of under-voltage or over-voltage per the voltage limits defined by Rivian. Contactor opens and DTCs are set when voltage of the 9 module 135 kWh battery is below 216 V or above 459 V.

09.00.00 (Reserved)

10.00.00 (Reserved)

11.00.00 Starting and shifting schedules

12.00.00 (Reserved)

13.00.00 (Reserved)

14.00.00 (Reserved)

15.00.00 (Reserved)

16.00.00 (Reserved)

17.00.00 California requirements

17.01.00 Statement of compliance

Every vehicle which is covered by this application conforms to US EPA Federal Tier 3 Bin 0 regulations applicable to new Medium Duty Passenger Vehicles and state of California ZEV regulations applicable to new Medium-Duty Vehicles for the 2023 Model Year.

17.01.01 General statement

Rivian confirms that the production vehicles covered by this application will be substantially the same as the vehicles tested for the purposes of this application.

17.01.02 Drivability statement

As of 01/01/2006, This statement is no longer included in the California Exhaust Emission Standards and Test Procedures.

17.02.00 Supplemental Data and Certification Review Sheets

See end of document for ZEV Supplemental Sheets

17.03.00 (Reserved)

17.04.00 Credits

17.04.01 Description of multi-manufacturer arrangements

N/A

17.04.02 Credit calculation

17.05.00 Vehicle Safety

The Rivian architecture comprises a body attached to a skateboard frame structure. The primary structure encompasses engineered crush zones used to, in case of crash, absorb the crash energy. The “safety cage” comprises of body pillars, side impact bars, floor sills and roof rails (working with other structural elements) and with an advanced optimized restraint system to help properly restrain and protect occupants.

17.05.01 All information for safe operation of vehicle

See sections 03.04.00, 03.05.00, and 11.00.00.

17.05.02 Information on safe handling of battery system

The high voltage battery is to be serviced and handled only by technicians authorized by Rivian.

17.05.03 Description of emergency procedures

Emergency procedures are described in the owner’s manual. Please refer to the owner’s manual for details. Emergency procedures for first responders are described in the Emergency Response Guide provided for this vehicle.

17.06.00 (Reserved)

Test Results:

R1S 21" Dual Large

EPA EV Multicycle Calculator (SAE J1634 Oct 2012)

Manufacturer: RIVIAN
 Carline: R1S
 Model Year: 2023
 Vehicle: R1S 040X 21"
 Test Number:
 Comments: ALL PURPOSE
 Lab: FEV
 Test Date: 3/10/2023

D.Good March 8, 2016

Cycle	Energy (Wh)	Distance (mi)	ECdc_cyc	Kuwt	Kwgt	Recharge AC WattHrs
UDDS1	1992.98	7.422	268.52	67.13	4.09	151758.000
UDDS2	1901.59	7.428	256.00	64.00	84.03	
UDDS3	1841.31	7.429	247.85	61.96	81.36	
UDDS4	1850.89	7.436	248.91	62.23	81.70	
HWY1	2892.33	10.249	282.21	141.10		
HWY2	2805.91	10.246	273.84	136.92		
SS1	94517.37	278.856	338.95			
SS2	22929.4	67.436	340.02			
TOTAL	130731.77	396.502				

K-Factors	UDDS1	UDDS2	UDDS3	UDDS4	HWY1	HWY2
Unweighted	0.250	0.250	0.250	0.250	0.500	0.500
Weighted	0.015	0.328	0.328	0.328	NA	NA

Results	Range (mi)	AC Wh/mi	MPGe	kWh/100mi	EPA version kWh/100mi
UDDSu	512.03	296.39			
UDDSw	520.45	291.59	115.5902	29.1590	29.15905
HWY	470.21	322.74	104.4332	32.2742	32.27420

MCT Results	whdc/mi	mi/kwhdc	mi/kwhac
UDDS	251.1903	3.9810	3.4295
HFEDS	278.0258	3.5968	3.0984

Range	0.7 Adj	Adj	MPGe	MPGe
Factor	0.7000	0.7072	0.7000	2.6861
City	364.31	368.05	80.9131	310.4910
Hwy	329.15	332.52	73.1033	280.5219
Combined	348.49	352.06	77.40	297.00

R1S 22" Dual Large

EPA EV Multicycle Calculator (SAE J1634 Oct 2012)

Manufacturer: RIVIAN
Carline: R1S
Model Year: 2023
Vehicle: R1S 040X 22"
Test Number:
Comments: ALL PURPOSE
Lab: FEV
Test Date: 3/27/2023

As used by EPA laboratory

D.Good March 8, 2016

Cycle	Energy (Wh)	Distance (mi)	ECdc_cyc	Kuwt	Kwgt	Recharge AC WattHrs
UDDS1	2012.85	7.402	271.93	67.98	4.17	151994
UDDS2	1957.20	7.442	262.99	65.75	86.32	
UDDS3	1913.71	7.438	257.29	64.32	84.45	
UDDS4	1913.00	7.443	257.02	64.26	84.36	
HWY1	3027.09	10.274	294.63	147.31		
HWY2	2962.08	10.264	288.58	144.29		
SS1	94881.56	261.954	362.21			
SS2	22478.80	61.693	364.37			
TOTAL	131146.29	373.911				

K-Factors	UDDS1	UDDS2	UDDS3	UDDS4	HWY1	HWY2
Unweighted	0.250	0.250	0.250	0.250	0.500	0.500
Weighted	0.015	0.328	0.328	0.328	NA	NA

Results	Range (mi)	AC Wh/mi	MPGe	kWh/100mi	EPA version kWh/100mi
UDDSu	499.97	304.01			
UDDSw	505.78	300.52	112.1567	30.0517	30.05170
HWY	449.75	337.96	99.7320	33.7956	33.79557

MCT Results	whdc/mi	mi/kwhdc	mi/kwhac
UDDS	259.2977	3.8566	3.3276
HFEDS	291.6012	3.4293	2.9590

Range	0.7 Adj	Adj	MPGe	MPGe
Factor	0.7000	0.7093	0.7000	0.7093
City	354.04	358.75	78.5097	79.5539
Hwy	314.82	319.01	69.8124	70.7410
Combined	336.39	340.87	74.60	75.59

R1S 20" All-Terrain Dual Large

EPA EV Multicycle Calculator (SAE J1634 Oct 2012)

Manufacturer: RIVIAN
Carline: R1S
Model Year: 2023
Vehicle: R1S 040X
Test Number:
Comments: All-Purpose
Lab: FEV
Test Date: 4/11/2023

As used by EPA laboratory

D.Good March 8, 2016

Cycle	Energy (Wh)	Distance (mi)	ECdc_cyc	Kuwt	Kwgt	Recharge AC WattHrs
UDDS1	2257.62	7.447	303.16	75.79	5.24	150826
UDDS2	2184.59	7.440	293.63	73.41	96.18	
UDDS3	2081.98	7.445	279.65	69.91	91.61	
UDDS4	2089.22	7.456	280.21	70.05	91.79	
HWY1	3315.74	10.239	323.84	161.92		
HWY2	3216.93	10.259	313.58	156.79		
SS1	99200.76	251.402	394.59			
SS2	16325.41	41.292	395.37			
TOTAL	130672.25	342.980				

K-Factors	UDDS1	UDDS2	UDDS3	UDDS4	HWY1	HWY2
Unweighted	0.250	0.250	0.250	0.250	0.500	0.500
Weighted	0.017	0.328	0.328	0.328	NA	NA

Results	Range (mi)	AC Wh/mi	EPA version	
			MPGe	kWh/100mi
UDDSu	451.90	333.76		
UDDSw	458.79	328.74	102.5265	32.8744
HWY	410.01	367.86	91.6245	36.7860

EPA version
kWh/100mi
32.87443
36.78603

MCT Results	whdc/mi	mi/kwhdc	mi/kwhac
UDDS	284.8167	3.5110	3.0419
HFEDS	318.7059	3.1377	2.7184

Range	0.7 Adj		MPGe	MPGe
	Adj			
Factor	0.7000	0.7000	0.7000	0.7000
City	321.16	321.16	71.7685	71.7685
Hwy	287.01	287.01	64.1371	64.1371
Combined	305.79	305.79	68.33	68.33

Certification Summary Information Report

Test Group		PRIVT00.0192	Evaporative/Refueling Family		--		
Models Covered by this Certificate							
Carline Manufacturer	Division	Carline	Certification Region Code(s)	Drive System	Trans - Type	- # of Gears	Trans - Lockup
Rivian Automotive LLC	1 - Rivian	530 - R1S 20in All-Terrain Dual Large	California + CAA Section 177 states	Part-time 4-Wheel Drive	Automatic	1	No
Rivian Automotive LLC	1 - Rivian	531 - R1S 21in Dual Large	Federal	Part-time 4-Wheel Drive	Automatic	1	No
Rivian Automotive LLC	1 - Rivian	730 - R1T 20in All-Terrain Dual Large	Federal	Part-time 4-Wheel Drive	Automatic	1	No
Rivian Automotive LLC	1 - Rivian	532 - R1S 22in Dual Large	Federal	Part-time 4-Wheel Drive	Automatic	1	No
Rivian Automotive LLC	1 - Rivian	532 - R1S 22in Dual Large	California + CAA Section 177 states	Part-time 4-Wheel Drive	Automatic	1	No
Rivian Automotive LLC	1 - Rivian	730 - R1T 20in All-Terrain Dual Large	California + CAA Section 177 states	Part-time 4-Wheel Drive	Automatic	1	No
Rivian Automotive LLC	1 - Rivian	731 - R1T 21in Dual Large	California + CAA Section 177 states	Part-time 4-Wheel Drive	Automatic	1	No
Rivian Automotive LLC	1 - Rivian	732 - R1T 22in Dual Large	Federal	Part-time 4-Wheel Drive	Automatic	1	No
Rivian Automotive LLC	1 - Rivian	732 - R1T 22in Dual Large	California + CAA Section 177 states	Part-time 4-Wheel Drive	Automatic	1	No
Rivian Automotive LLC	1 - Rivian	530 - R1S 20in All-Terrain Dual Large	Federal	Part-time 4-Wheel Drive	Automatic	1	No
Rivian Automotive LLC	1 - Rivian	531 - R1S 21in Dual Large	California + CAA Section 177 states	Part-time 4-Wheel Drive	Automatic	1	No
Rivian Automotive LLC	1 - Rivian	731 - R1T 21in Dual Large	Federal	Part-time 4-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	--

Certification Summary Information Report

Test Group	PRIVT00.0192				Evaporative/Refueling Family				--		
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	--			--			--				
Official Charge Depleting Test Numbers											
Test Group Fuel	UDDS				Highway						
Electricity	PRIV10080257				PRIV10080258						
Electricity	PRIV10079973				PRIV10079974						
Electricity	PRIV10079232				PRIV10079233						
Hybrid Electric Vehicle And Fuel Cell Information											
Rechargeable Energy Storage System	Battery(s)				Rechargeable Energy Storage System, if Other				--		
Battery Type	Lithium Ion				Number of Battery Packs				1		
Total Voltage of Battery Packs	400				Battery Energy Capacity				360		
Battery Specific Energy	169				Battery Charger Type				Both		
Number of Capacitors	--				Capacitor Rating (In Farads)				--		
Mfr Capacitor Comments	--										
Hydraulic System Description	--										
Regenerative Braking Type	Electrical Regen Brake				Driver Controlled Regenerative Braking				Yes		
Regenerative Braking Source	Both										
Mfr Regenerative Braking Description	--										
Drive Motor(s)/Generator(s)	2				Rated Motor/Generator Power				264		
Motor/Generator Type 1	AC Induction				Rated Motor/Generator Power				264		
Motor/Generator Type 2	AC Induction										
Mfr Fuel Cell Description	--										
Fuel Cell On-Board H2 Storage Capacity (kg)	--				Usable H2 Fill Capacity (kg)				--		
Mfr Hybrid Electric/ Electric Vehicle Comments	All-Purpose (Default) Drive Mode										

Certification Summary Information Report

Test Group		PRIVT00.0192			Evaporative/Refueling Family			--
Dynamometer Coefficients:								
		Target Coefficients			Set Coefficients			EPA Calculated Total Road Load Horse Power for City/Highway/Evap Coefficients
Coefficient Category	A (lbf)	B (lbf/mph)	C (lbf/mph**2)	A (lbf)	B (lbf/mph)	C (lbf/mph**2)		
City/Highway/Evap	60.02	0.3434	0.02458	1.1	-0.058	0.0267	18.5	
Cold CO	66.02	0.3777	0.02704	-9.84	-0.234	0.02946	N/A	
US06	60.02	0.3434	0.02458	1.1	-0.058	0.0267	N/A	
Emission Control Device Comments	Battery Electric Vehicle							
Manufacturer Test Vehicle Comments	FDU Axle Ratio: 11.0:1 RDU Axle Ratio: 13.7:1 FDU N/V: 135.0 RDU N/V: 108.4							

Certification Summary Information Report

Test Group	PRIVT00.0192	Evaporative/Refueling Family	--
Test #	PRIV10080257	Test Procedure	81 - Charge Depleting UDDS
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	04/11/2023	Fuel	Electricity
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	MDPV (Federal Tier 2, GVWR 8501-10000)	DF Type	EPA Assigned
Verify Test Lab ID	FEV Michigan		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4903	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
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	240	Recharge Event Energy (kiloWatt-hours)	150.83
Charge Depleting Range (Calculated miles)	458.79	Charge Depleting Range (Actual miles)	458.79
All Electric Range Unadjusted (miles)	--	Derived 5-Cycle Coefficient Model Year	--
Equivalent All Electric Range (miles)	458.79		
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-Related Exhaust Emissions	0
2	Drive Trace Absolute Speed Change Rating	-0.19
3	Drive Trace Energy Economy Rating	-0.45
4	Drive Trace Inertia Work Ratio Rating	-0.34
5	Manufacturer Fuel Economy	28.02

Charge Depleting Bag/Phase

Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result
6	Carbon-Related Exhaust Emissions	0
7	Drive Trace Absolute Speed Change Rating	0.2
8	Drive Trace Energy Economy Rating	0.11
9	Drive Trace Inertia Work Ratio Rating	0.46
10	Manufacturer Fuel Economy	29.36

Charge Depleting Bag/Phase

Certification Summary Information Report

Test Group	PRIVT00.0192	Evaporative/Refueling Family	--
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Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result
11	Carbon-Related Exhaust Emissions	0
12	Drive Trace Absolute Speed Change Rating	-0.56
13	Drive Trace Energy Economy Rating	-0.46
14	Drive Trace Inertia Work Ratio Rating	-0.69
15	Manufacturer Fuel Economy	27.96

Charge Depleting Bag/Phase

Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result
16	Carbon-Related Exhaust Emissions	0
17	Drive Trace Absolute Speed Change Rating	1
18	Drive Trace Energy Economy Rating	0.55
19	Drive Trace Inertia Work Ratio Rating	1.45
20	Manufacturer Fuel Economy	30.32

Manufacturer Test Comments

R1S - Drive Mode: All-Purpose (Default Mode) Dual Motor, Large Battery Pack, and 20" Tires. Cycle 1: 303.16 Wh/mi, Cycle 2: 293.63 Wh/mi, Cycle 3: 279.65 Wh/mi, Cycle 4: 280.21 Wh/mi. Cycle 1: 2257.63 Wh MCT DC Energy: 130672.25 Wh

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	CREE	0	--	--	--	0	--	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--

Certification Summary Information Report

Test Group	PRIVT00.0192	Evaporative/Refueling Family	--																		
Test #	PRIV10080258	Test Procedure	84 - Charge Depleting Highway																		
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity																		
Test Date	04/11/2023	Fuel	Electricity																		
Fuel Batch ID	--	Fuel Calibration Number	--																		
Vehicle Class	MDPV (Federal Tier 2, GVWR 8501-10000)	DF Type	EPA Assigned																		
Verify Test Lab ID	FEV Michigan																				
E10 Evaporative Test Measurement Method	--																				
Test Start Odometer Reading	4903	Odometer Units	M																		
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--																		
State of Charge Delta	Yes																				
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	240	Recharge Event Energy (kiloWatt-hours)	150.83																		
Charge Depleting Range (Calculated miles)	410.01	Charge Depleting Range (Actual miles)	410.01																		
All Electric Range Unadjusted (miles)	--	Derived 5-Cycle Coefficient Model Year	--																		
Equivalent All Electric Range (miles)	410.01																				
Number of Charge Depleting Bags/Phases Conducted	2	Transition Bag/Phase Number	--																		
Charge Depleting Bag/Phase																					
<table border="1"> <thead> <tr> <th>Charge Depleting Bag/Phase #</th> <th>Test Result/Emission Name</th> <th>Unrounded Test Result</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Carbon-Related Exhaust Emissions</td> <td>0</td> </tr> <tr> <td>2</td> <td>Drive Trace Absolute Speed Change Rating</td> <td>-1.15</td> </tr> <tr> <td>3</td> <td>Drive Trace Energy Economy Rating</td> <td>0.02</td> </tr> <tr> <td>4</td> <td>Drive Trace Inertia Work Ratio Rating</td> <td>-1.31</td> </tr> <tr> <td>5</td> <td>Manufacturer Fuel Economy</td> <td>31.36</td> </tr> </tbody> </table>				Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result	1	Carbon-Related Exhaust Emissions	0	2	Drive Trace Absolute Speed Change Rating	-1.15	3	Drive Trace Energy Economy Rating	0.02	4	Drive Trace Inertia Work Ratio Rating	-1.31	5	Manufacturer Fuel Economy	31.36
Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result																			
1	Carbon-Related Exhaust Emissions	0																			
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3	Drive Trace Energy Economy Rating	0.02																			
4	Drive Trace Inertia Work Ratio Rating	-1.31																			
5	Manufacturer Fuel Economy	31.36																			
Charge Depleting Bag/Phase																					
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Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result																			
6	Carbon-Related Exhaust Emissions	0																			
7	Drive Trace Absolute Speed Change Rating	1																			
8	Drive Trace Energy Economy Rating	0.57																			
9	Drive Trace Inertia Work Ratio Rating	0.91																			
10	Manufacturer Fuel Economy	32.38																			
Manufacturer Test Comments	R1S - Drive Mode: All-Purpose (Default Mode) Dual Motor, Large Battery Pack, and 20" Tires. Cycle 1: 323.84 Wh/mi, Cycle 2: 313.58 Wh/mi MCT DC Energy: 130672.25 Wh																				

Certification Summary Information Report

Test Group	PRIVT00.0192	Evaporative/Refueling Family	--
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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	CREE	0	--	--	--	0	--	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--

Certification Summary Information Report

Test Group	PRIVT00.0192	Evaporative/Refueling Family	--						
Emission Data Vehicle Information									
Vehicle ID / Configuration	R1S040XR21 / 0	Manufacturer Vehicle Configuration Number	0						
Original Test Group Name	PRIVT00.0192	Original Evaporative/Refueling Family	--						
Original Test Vehicle Model Year	2023								
Vehicle Model									
Represented Test Vehicle Make	Rivian	Represented Test Vehicle Model	R1S 21in Dual Large						
Leak Family Details									
Leak Family Identifier	--	Leak Family Name	--						
Drive Sources and Fuel System Details									
	<table border="1"> <thead> <tr> <th>Drive Source and Fuel#</th> <th>Drive Source</th> <th>Fuel</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Electric Motor</td> <td>Electricity</td> </tr> </tbody> </table>			Drive Source and Fuel#	Drive Source	Fuel	1	Electric Motor	Electricity
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 * Correction factor) + Initial system miles								
Odometer Correction Units	Miles								
Engine Code	264X2RW	Rated Horsepower	708						
Displacement (liters)	99.999								
Air Aspiration Method	Naturally Aspirated	Air Aspiration Method, if 'Other'	Electric						
Number of Air Aspiration Devices	--	Air Aspiration Device Configuration	--						
Charge Air Cooler Type	--	Drive Mode While Testing	Part-time 4-Wheel Drive						
Shift Indicator Light Usage	Not equipped	Aged Emission Components	4,000 (mi)						
Curb Weight (lbs)	6722	Equivalent Test Weight (pounds)	7000						
GVWR (lbs)	--	N/V Ratio	999						
Axle Ratio	9.99								
Transmission Type	Automatic	# of Transmission Gears	1						
Transmission Lockup	No	Creeper Gear	No						

Certification Summary Information Report

Test Group	PRIVT00.0192	Evaporative/Refueling Family	--
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Dynamometer Coefficients:

Coefficient Category	Target Coefficients			Set Coefficients			EPA Calculated Total Road Load Horse Power for City/Highway/Evap Coefficients
	A (lbf)	B (lbf/mph)	C (lbf/mph**2)	A (lbf)	B (lbf/mph)	C (lbf/mph**2)	
City/Highway/Evap	45.22	0.6456	0.01633	-2.18	0.4431	0.0174	15.8
Cold CO	49.74	0.7102	0.01796	-7.21	0.1288	0.0211	N/A
US06	45.22	0.6456	0.01633	-2.18	0.4431	0.0174	N/A

Emission Control Device Comments

Battery Electric Vehicle

Manufacturer Test Vehicle Comments

FDU Axle Ratio: 11.0:1 RDU Axle Ratio: 13.7:1 FDU N/V: 140.0 RDU N/V: 112.4

Certification Summary Information Report

Test Group	PRIVT00.0192	Evaporative/Refueling Family	--
Test #	PRIV10079554	Test Procedure	2 - CVS 75 and later (w/o can. load)
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	03/15/2023	Fuel	Electricity
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	MDPV (Federal Tier 2, GVWR 8501-10000)	DF Type	EPA Assigned
Verify Test Lab ID	FEV Michigan		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4207	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
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)
METHANE (CH4 - Methane)	0	--
CO (Carbon Monoxide)	0	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	-0.15	--
DT-EER (Drive Trace Energy Economy Rating)	-0.32	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	-0.21	--
MFR FE (Manufacturer Fuel Economy)	25.95	129.8651252
NOX (Nitrogen Oxide)	0	--
N2O (Nitrous Oxide)	0	--
HC-NM (Non-methane Hydrocarbon)	0	--
NMOG (Non-methane organic gases)	0	--

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

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	0	--

Manufacturer Test Comments

R1S - Drive Mode: All-Purpose (Default Mode) Dual Motor, Large Battery Pack, and 21" Tires. Cycle 1: 283.16 Wh/mi, Cycle 2: 241.93 Wh/mi, Cycle 3: 276.15 Wh/mi, Cycle 4: 239.50 Wh/mi.

Certification Summary Information Report

Test Group	PRIVT00.0192	Evaporative/Refueling Family	--
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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	PRIVT00.0192	Evaporative/Refueling Family	--
Test #	PRIV10079555	Test Procedure	3 - HWFE
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	03/15/2023	Fuel	N/A
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	N/A	DF Type	EPA Assigned
Verify Test Lab ID	FEV Michigan		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4207	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
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)
METHANE (CH4 - Methane)	0	--
CO (Carbon Monoxide)	0	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	0.57	--
DT-EER (Drive Trace Energy Economy Rating)	-0.3	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	0.5	--
MFR FE (Manufacturer Fuel Economy)	28.01	120.3141735
NOX (Nitrogen Oxide)	0	--
N2O (Nitrous Oxide)	0	--
HC-NM (Non-methane Hydrocarbon)	0	--
NMOG (Non-methane organic gases)	0	--

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

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	0	--

Manufacturer Test Comments

R1S - Drive Mode: All-Purpose (Default Mode) Dual Motor, Large Battery Pack, and 21" Tires. Cycle 1: 280.08 Wh/mi

Certification Summary Information Report

Test Group	PRIVT00.0192	Evaporative/Refueling Family	--
Test #	PRIV10079556	Test Procedure	90 - US06
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	03/16/2023	Fuel	N/A
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	N/A	DF Type	EPA Assigned
Verify Test Lab ID	FEV Michigan		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4239	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
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)
METHANE (CH4 - Methane)	0	--
CO (Carbon Monoxide)	0	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	1.66	--
DT-EER (Drive Trace Energy Economy Rating)	0.66	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	2.69	--
MFR FE (Manufacturer Fuel Economy)	36.5	92.3287671
NOX (Nitrogen Oxide)	0	--
N2O (Nitrous Oxide)	0	--
HC-NM (Non-methane Hydrocarbon)	0	--
NMOG (Non-methane organic gases)	0	--

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

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	0	--

Manufacturer Test Comments

R1S - Drive Mode: All-Purpose (Default Mode) Dual Motor, Large Battery Pack, and 21" Tires. Cycle 1 (City1): 350.52 Wh/mi, Cycle 2 (HWY): 361.07 Wh/mi, Cycle 3 (City2): 452.60 Wh/mi

Certification Summary Information Report

Test Group	PRIVT00.0192	Evaporative/Refueling Family	--
Test #	PRIV10079557	Test Procedure	95 - SC03
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	03/16/2023	Fuel	N/A
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	N/A	DF Type	EPA Assigned
Verify Test Lab ID	FEV Michigan		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4232	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
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)
METHANE (CH4 - Methane)	0	--
CO (Carbon Monoxide)	0	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	-0.62	--
DT-EER (Drive Trace Energy Economy Rating)	-0.79	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	-0.44	--
MFR FE (Manufacturer Fuel Economy)	33.74	99.8814464
NOX (Nitrogen Oxide)	0	--
N2O (Nitrous Oxide)	0	--
HC-NM (Non-methane Hydrocarbon)	0	--
NMOG (Non-methane organic gases)	0	--

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

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	0	--

Manufacturer Test Comments

R1S - Drive Mode: All-Purpose (Default Mode) Dual Motor, Large Battery Pack, and 21" Tires. Cycle 1: 337.36 Wh/mi

Certification Summary Information Report

Test Group	PRIVT00.0192	Evaporative/Refueling Family	--
Test #	PRIV10079232	Test Procedure	81 - Charge Depleting UDDS
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	03/10/2023	Fuel	Electricity
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	MDPV (Federal Tier 2, GVWR 8501-10000)	DF Type	EPA Assigned
Verify Test Lab ID	FEV Michigan		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	3699	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
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	240	Recharge Event Energy (kiloWatt-hours)	151.76
Charge Depleting Range (Calculated miles)	520.45	Charge Depleting Range (Actual miles)	520.45
All Electric Range Unadjusted (miles)	--	Derived 5-Cycle Coefficient Model Year	--
Equivalent All Electric Range (miles)	520.45		
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-Related Exhaust Emissions	0
2	Drive Trace Absolute Speed Change Rating	0.64
3	Drive Trace Energy Economy Rating	0.27
4	Drive Trace Inertia Work Ratio Rating	0.91
5	Manufacturer Fuel Economy	25.6

Charge Depleting Bag/Phase

Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result
6	Carbon-Related Exhaust Emissions	0
7	Drive Trace Absolute Speed Change Rating	0.4
8	Drive Trace Energy Economy Rating	-0.02
9	Drive Trace Inertia Work Ratio Rating	0.84
10	Manufacturer Fuel Economy	24.89

Charge Depleting Bag/Phase

Certification Summary Information Report

Test Group	PRIVT00.0192	Evaporative/Refueling Family	--
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Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result
11	Carbon-Related Exhaust Emissions	0
12	Drive Trace Absolute Speed Change Rating	0.41
13	Drive Trace Energy Economy Rating	0.2
14	Drive Trace Inertia Work Ratio Rating	0.7
15	Manufacturer Fuel Economy	24.79

Charge Depleting Bag/Phase

Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result
16	Carbon-Related Exhaust Emissions	0
17	Drive Trace Absolute Speed Change Rating	0.12
18	Drive Trace Energy Economy Rating	-0.39
19	Drive Trace Inertia Work Ratio Rating	0.13
20	Manufacturer Fuel Economy	26.85

Manufacturer Test Comments

R1S - Drive Mode: All-Purpose (Default Mode) Dual Motor, Large Battery Pack, and 21" Tires. Cycle 1: 268.52 Wh/mi, Cycle 2: 256.00 Wh/mi, Cycle 3: 247.85 Wh/mi, Cycle 4: 248.91 Wh/mi. MCT Energy: 130731.77 Wh

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	CREE	0	--	--	--	0	--	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--

Certification Summary Information Report

Test Group	PRIVT00.0192	Evaporative/Refueling Family	--																		
Test #	PRIV10079233	Test Procedure	84 - Charge Depleting Highway																		
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity																		
Test Date	03/10/2023	Fuel	Electricity																		
Fuel Batch ID	--	Fuel Calibration Number	--																		
Vehicle Class	MDPV (Federal Tier 2, GVWR 8501-10000)	DF Type	EPA Assigned																		
Verify Test Lab ID	FEV Michigan																				
E10 Evaporative Test Measurement Method	--																				
Test Start Odometer Reading	3699	Odometer Units	M																		
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--																		
State of Charge Delta	Yes																				
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	240	Recharge Event Energy (kiloWatt-hours)	151.76																		
Charge Depleting Range (Calculated miles)	470.21	Charge Depleting Range (Actual miles)	470.21																		
All Electric Range Unadjusted (miles)	--	Derived 5-Cycle Coefficient Model Year	--																		
Equivalent All Electric Range (miles)	470.21																				
Number of Charge Depleting Bags/Phases Conducted	2	Transition Bag/Phase Number	--																		
Charge Depleting Bag/Phase																					
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Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result																			
1	Carbon-Related Exhaust Emissions	0																			
2	Drive Trace Absolute Speed Change Rating	1.64																			
3	Drive Trace Energy Economy Rating	0.03																			
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Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result																			
6	Carbon-Related Exhaust Emissions	0																			
7	Drive Trace Absolute Speed Change Rating	1.82																			
8	Drive Trace Energy Economy Rating	0.1																			
9	Drive Trace Inertia Work Ratio Rating	2.07																			
10	Manufacturer Fuel Economy	28.22																			
Manufacturer Test Comments	R1S - Drive Mode: All-Purpose (Default Mode) Dual Motor, Large Battery Pack, and 21" Tires. Cycle 1: 282.21 Wh/mi, Cycle 2: 273.84 Wh/mi MCT Energy: 130731.77 Wh																				

Certification Summary Information Report

Test Group	PRIVT00.0192	Evaporative/Refueling Family	--
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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	CREE	0	--	--	--	0	--	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--

Certification Summary Information Report

Test Group	PRIVT00.0192	Evaporative/Refueling Family	--																		
Test #	PRIV10079558	Test Procedure	86 - Charge Depleting 20 Degree F FTP																		
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity																		
Test Date	03/15/2023	Fuel	N/A																		
Fuel Batch ID	--	Fuel Calibration Number	--																		
Vehicle Class	N/A	DF Type	EPA Assigned																		
Verify Test Lab ID	FEV Michigan																				
E10 Evaporative Test Measurement Method	--																				
Test Start Odometer Reading	4192	Odometer Units	M																		
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--																		
State of Charge Delta	Yes																				
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	240	Recharge Event Energy (kiloWatt-hours)	151.76																		
Charge Depleting Range (Calculated miles)	14.82	Charge Depleting Range (Actual miles)	14.82																		
All Electric Range Unadjusted (miles)	--	Derived 5-Cycle Coefficient Model Year	--																		
Equivalent All Electric Range (miles)	14.82																				
Number of Charge Depleting Bags/Phases Conducted	4	Transition Bag/Phase Number	--																		
Charge Depleting Bag/Phase																					
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Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result																			
1	Carbon-Related Exhaust Emissions	0																			
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Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result																			
6	Carbon-Related Exhaust Emissions	0																			
7	Drive Trace Absolute Speed Change Rating	1.71																			
8	Drive Trace Energy Economy Rating	1.13																			
9	Drive Trace Inertia Work Ratio Rating	3.22																			
10	Manufacturer Fuel Economy	52.89																			
Charge Depleting Bag/Phase																					

Certification Summary Information Report

Test Group	PRIVT00.0192	Evaporative/Refueling Family	--
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Emission Data Vehicle Information

Vehicle ID / Configuration	R1S040XR22 / 0	Manufacturer Vehicle Configuration Number	0
Original Test Group Name	PRIVT00.0192	Original Evaporative/Refueling Family	--
Original Test Vehicle Model Year	2023		
Vehicle Model			
Represented Test Vehicle Make	Rivian	Represented Test Vehicle Model	R1S 22in Dual Large

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 * Correction factor) + Initial system miles		
Odometer Correction Units	Miles		
Engine Code	264X2RW	Rated Horsepower	708
Displacement (liters)	99.999		
Air Aspiration Method	Naturally Aspirated	Air Aspiration Method, if 'Other'	Electric
Number of Air Aspiration Devices	--	Air Aspiration Device Configuration	--
Charge Air Cooler Type	--	Drive Mode While Testing	Part-time 4-Wheel Drive
Shift Indicator Light Usage	Not equipped	Aged Emission Components	4,000 (mi)
Curb Weight (lbs)	6735	Equivalent Test Weight (pounds)	7000
GVWR (lbs)	--	N/V Ratio	999
Axle Ratio	9.99		
Transmission Type	Automatic	# of Transmission Gears	1
Transmission Lockup	No	Creeper Gear	No

Certification Summary Information Report

Test Group		PRIVT00.0192			Evaporative/Refueling Family			--
Dynamometer Coefficients:								
		Target Coefficients			Set Coefficients			EPA Calculated Total Road Load Horse Power for City/Highway/Evap Coefficients
Coefficient Category	A (lbf)	B (lbf/mph)	C (lbf/mph**2)	A (lbf)	B (lbf/mph)	C (lbf/mph**2)		
City/Highway/Evap	55.14	0.3691	0.02153	1.04	0.081	0.02389	17	
Cold CO	60.65	0.406	0.02368	-10.31	-0.0655	0.02644	N/A	
US06	55.14	0.3691	0.02153	1.04	0.081	0.02389	N/A	
Emission Control Device Comments	Battery Electric Vehicle							
Manufacturer Test Vehicle Comments	FDU Axle Ratio: 11.0:1 RDU Axle Ratio: 13.7:1 FDU N/V: 70.0 RDU N/V: 87.2							

Certification Summary Information Report

Test Group	PRIVT00.0192	Evaporative/Refueling Family	--
Test #	PRIV10079977	Test Procedure	2 - CVS 75 and later (w/o can. load)
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	04/04/2023	Fuel	Electricity
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	MDPV (Federal Tier 2, GVWR 8501-10000)	DF Type	EPA Assigned
Verify Test Lab ID	FEV Michigan		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4790	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
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)
METHANE (CH4 - Methane)	0	--
CO (Carbon Monoxide)	0	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	0.57	--
DT-EER (Drive Trace Energy Economy Rating)	0.02	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	0.62	--
MFR FE (Manufacturer Fuel Economy)	27.11	124.3083733
NOX (Nitrogen Oxide)	0	--
N2O (Nitrous Oxide)	0	--
HC-NM (Non-methane Hydrocarbon)	0	--
NMOG (Non-methane organic gases)	0	--

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

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	0	--

Manufacturer Test Comments

R1S - Drive Mode: All-Purpose (Default Mode) Dual Motor, Large Battery Pack, and 22" Tires. Cycle 1: 298.43 Wh/mi, Cycle 2: 252.47 Wh/mi, Cycle 3: 288.42 Wh/mi, Cycle 4: 248.31 Wh/mi.

Certification Summary Information Report

Test Group		PRIVT00.0192				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
CA	150,000 miles	California ZEV	CO	0.0	--	--	--	0	--	0	0	Pass

Certification Summary Information Report

Test Group	PRIVT00.0192	Evaporative/Refueling Family	--
Test #	PRIV10079979	Test Procedure	3 - HWFE
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	04/04/2023	Fuel	N/A
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	N/A	DF Type	EPA Assigned
Verify Test Lab ID	FEV Michigan		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4790	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
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)
METHANE (CH4 - Methane)	0	--
CO (Carbon Monoxide)	0	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	0.24	--
DT-EER (Drive Trace Energy Economy Rating)	0.21	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	0.08	--
MFR FE (Manufacturer Fuel Economy)	29.68	113.5444744
NOX (Nitrogen Oxide)	0	--
N2O (Nitrous Oxide)	0	--
HC-NM (Non-methane Hydrocarbon)	0	--
NMOG (Non-methane organic gases)	0	--

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

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	0	--

Manufacturer Test Comments

R1S - Drive Mode: All-Purpose (Default Mode) Dual Motor, Large Battery Pack, and 22" Tires. Cycle 1: 296.78 Wh/mi

Certification Summary Information Report

Test Group	PRIVT00.0192	Evaporative/Refueling Family	--
Test #	PRIV10079984	Test Procedure	90 - US06
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	04/05/2023	Fuel	N/A
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	N/A	DF Type	EPA Assigned
Verify Test Lab ID	FEV Michigan		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4838	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
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)
METHANE (CH4 - Methane)	0	--
CO (Carbon Monoxide)	0	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	1.11	--
DT-EER (Drive Trace Energy Economy Rating)	2.73	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	4.32	--
MFR FE (Manufacturer Fuel Economy)	38.56	87.3962656
NOX (Nitrogen Oxide)	0	--
N2O (Nitrous Oxide)	0	--
HC-NM (Non-methane Hydrocarbon)	0	--
NMOG (Non-methane organic gases)	0	--

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

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	0	--

Manufacturer Test Comments

R1S - Drive Mode: All-Purpose (Default Mode) Dual Motor, Large Battery Pack, and 22" Tires. Cycle 1 (City1): 362.89 Wh/mi, Cycle 2 (HWY): 384.71 Wh/mi, Cycle 3 (City2): 456.02 Wh/mi

Certification Summary Information Report

Test Group	PRIVT00.0192	Evaporative/Refueling Family	--
Test #	PRIV10079985	Test Procedure	95 - SC03
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	04/05/2023	Fuel	N/A
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	N/A	DF Type	EPA Assigned
Verify Test Lab ID	FEV Michigan		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4831	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
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)
METHANE (CH4 - Methane)	0	--
CO (Carbon Monoxide)	0	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	-0.12	--
DT-EER (Drive Trace Energy Economy Rating)	-0.43	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	-0.72	--
MFR FE (Manufacturer Fuel Economy)	35.04	96.1757991
NOX (Nitrogen Oxide)	0	--
N2O (Nitrous Oxide)	0	--
HC-NM (Non-methane Hydrocarbon)	0	--
NMOG (Non-methane organic gases)	0	--

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

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	0	--

Manufacturer Test Comments

R1S - Drive Mode: All-Purpose (Default Mode) Dual Motor, Large Battery Pack, and 22" Tires. Cycle 1: 350.35 Wh/mi

Certification Summary Information Report

Test Group	PRIVT00.0192	Evaporative/Refueling Family	--
Test #	PRIV10079973	Test Procedure	81 - Charge Depleting UDDS
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	03/27/2023	Fuel	Electricity
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	MDPV (Federal Tier 2, GVWR 8501-10000)	DF Type	EPA Assigned
Verify Test Lab ID	FEV Michigan		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4319	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
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	240	Recharge Event Energy (kiloWatt-hours)	151.99
Charge Depleting Range (Calculated miles)	505.78	Charge Depleting Range (Actual miles)	505.78
All Electric Range Unadjusted (miles)	--	Derived 5-Cycle Coefficient Model Year	--
Equivalent All Electric Range (miles)	505.78		
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-Related Exhaust Emissions	0
2	Drive Trace Absolute Speed Change Rating	-1.04
3	Drive Trace Energy Economy Rating	-0.91
4	Drive Trace Inertia Work Ratio Rating	-0.72
5	Manufacturer Fuel Economy	27.19

Charge Depleting Bag/Phase

Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result
6	Carbon-Related Exhaust Emissions	0
7	Drive Trace Absolute Speed Change Rating	-2.65
8	Drive Trace Energy Economy Rating	-2.33
9	Drive Trace Inertia Work Ratio Rating	-3.69
10	Manufacturer Fuel Economy	26.3

Charge Depleting Bag/Phase

Certification Summary Information Report

Test Group	PRIVT00.0192		Evaporative/Refueling Family		--							
	Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result									
	11	Carbon-Related Exhaust Emissions	0									
	12	Drive Trace Absolute Speed Change Rating	-0.89									
	13	Drive Trace Energy Economy Rating	-0.51									
	14	Drive Trace Inertia Work Ratio Rating	-0.92									
	15	Manufacturer Fuel Economy	25.7									
Charge Depleting Bag/Phase												
	Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result									
	16	Carbon-Related Exhaust Emissions	0									
	17	Drive Trace Absolute Speed Change Rating	-2.05									
	18	Drive Trace Energy Economy Rating	-0.86									
	19	Drive Trace Inertia Work Ratio Rating	-1.72									
	20	Manufacturer Fuel Economy	25.73									
Manufacturer Test Comments												
R1S - Drive Mode: All-Purpose (Default Mode) Dual Motor, Large Battery Pack, and 22" Tires. Cycle 1: 271.93 Wh/mi, Cycle 2: 262.99 Wh/mi, Cycle 3: 257.29 Wh/mi, Cycle 4: 257.02 Wh/mi. MCT Energy: 131146.29 Wh												
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	CREE	0	--	--	--	0	--	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--

Certification Summary Information Report

Test Group	PRIVT00.0192	Evaporative/Refueling Family	--
Test #	PRIV10079974	Test Procedure	84 - Charge Depleting Highway
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	03/27/2023	Fuel	Electricity
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	MDPV (Federal Tier 2, GVWR 8501-10000)	DF Type	EPA Assigned
Verify Test Lab ID	FEV Michigan		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4319	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
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	240	Recharge Event Energy (kiloWatt-hours)	151.99
Charge Depleting Range (Calculated miles)	449.75	Charge Depleting Range (Actual miles)	449.75
All Electric Range Unadjusted (miles)	--	Derived 5-Cycle Coefficient Model Year	--
Equivalent All Electric Range (miles)	449.75		
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-Related Exhaust Emissions	0
2	Drive Trace Absolute Speed Change Rating	-0.61
3	Drive Trace Energy Economy Rating	-0.42
4	Drive Trace Inertia Work Ratio Rating	-0.7
5	Manufacturer Fuel Economy	28.86

Charge Depleting Bag/Phase

Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result
6	Carbon-Related Exhaust Emissions	0
7	Drive Trace Absolute Speed Change Rating	0.05
8	Drive Trace Energy Economy Rating	-1.08
9	Drive Trace Inertia Work Ratio Rating	0.51
10	Manufacturer Fuel Economy	29.46

Manufacturer Test Comments

R1S - Drive Mode: All-Purpose (Default Mode) Dual Motor, Large Battery Pack, and 22" Tires. Cycle 1: 294.63 Wh/mi, Cycle 2: 288.58 Wh/mi
MCT Energy: 131146.29 Wh

Certification Summary Information Report

Test Group		PRIVT00.0192				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	CREE	0	--	--	--	0	--	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--

Certification Summary Information Report

Test Group	PRIVT00.0192	Evaporative/Refueling Family	--
Test #	PRIV10079986	Test Procedure	86 - Charge Depleting 20 Degree F FTP
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	04/03/2023	Fuel	N/A
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	N/A	DF Type	EPA Assigned
Verify Test Lab ID	FEV Michigan		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4775	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
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	240	Recharge Event Energy (kiloWatt-hours)	151.99
Charge Depleting Range (Calculated miles)	14.88	Charge Depleting Range (Actual miles)	14.88
All Electric Range Unadjusted (miles)	--	Derived 5-Cycle Coefficient Model Year	--
Equivalent All Electric Range (miles)	14.88		
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-Related Exhaust Emissions	0
2	Drive Trace Absolute Speed Change Rating	1.12
3	Drive Trace Energy Economy Rating	1.01
4	Drive Trace Inertia Work Ratio Rating	2.76
5	Manufacturer Fuel Economy	63.26

Charge Depleting Bag/Phase

Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result
6	Carbon-Related Exhaust Emissions	0
7	Drive Trace Absolute Speed Change Rating	1.89
8	Drive Trace Energy Economy Rating	0.7
9	Drive Trace Inertia Work Ratio Rating	1.82
10	Manufacturer Fuel Economy	50.75

Charge Depleting Bag/Phase

Certification Summary Information Report

Test Group	PRIVT00.0192	Evaporative/Refueling Family	--
	Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result
	11	Carbon-Related Exhaust Emissions	0
	12	Drive Trace Absolute Speed Change Rating	1.53
	13	Drive Trace Energy Economy Rating	0.43
	14	Drive Trace Inertia Work Ratio Rating	2.36
	15	Manufacturer Fuel Economy	46.42
Charge Depleting Bag/Phase			
	Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result
	16	Carbon-Related Exhaust Emissions	0
	17	Drive Trace Absolute Speed Change Rating	1.2
	18	Drive Trace Energy Economy Rating	-0.15
	19	Drive Trace Inertia Work Ratio Rating	1.25
	20	Manufacturer Fuel Economy	43.32
Manufacturer Test Comments	R1S - Drive Mode: All-Purpose (Default Mode) Dual Motor, Large Battery Pack, and 22" Tires. Cycle 1: 632.63 Wh/mi, Cycle 2: 507.51 Wh/mi, Cycle 3: 464.22 Wh/mi, Cycle 4: 433.19 Wh/mi,		
Fuel Properties			

Certification Summary Information Report

Test Group	PRIVT00.0192	Evaporative/Refueling Family	--
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Consolidated List of Standards

Exhaust Standards

Cert Region	California + CAA Section 177 states	Cert/In-Use Code	Cert
Vehicle Class	MDPV (Federal Tier 2, GVWR 8501-10000)	Standard Level	California ZEV
Fuel	Electricity	Test Procedure	Charge Depleting Highway

Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
150,000 miles	CO	--	--	--	--	--	--	0	0
150,000 miles	CO-COMP	--	--	--	--	--	--	0	0
150,000 miles	CREE	--	--	--	--	--	--	0	0
150,000 miles	NMOG+NOX-COMP	--	--	--	--	--	--	0	0

Cert Region	Federal	Cert/In-Use Code	Cert
Vehicle Class	MDPV (Federal Tier 2, GVWR 8501-10000)	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	MDPV (Federal Tier 2, GVWR 8501-10000)	Standard Level	Federal Tier 3 Bin 0
Fuel	Electricity	Test Procedure	Charge Depleting UDSS

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		PRIVT00.0192			Evaporative/Refueling Family			--		
Cert Region		California + CAA Section 177 states			Cert/In-Use Code			Cert		
Vehicle Class		MDPV (Federal Tier 2, GVWR 8501-10000)			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	
Cert Region		Federal			Cert/In-Use Code			Cert		
Vehicle Class		MDPV (Federal Tier 2, GVWR 8501-10000)			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	
Cert Region		California + CAA Section 177 states			Cert/In-Use Code			Cert		
Vehicle Class		MDPV (Federal Tier 2, GVWR 8501-10000)			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	

Certification Summary Information Report

Test Group	PRIVT00.0192	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	PRIVT00.0192	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	PRIVT00.0192	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

Suggested ZEV Application Format for Certification

E.O.#. _____ Page 1 of 2

2023 MODEL-YEAR AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET
ZEV-PASSENGER CARS, LIGHT-DUTY TRUCKS AND MEDIUM-DUTY VEHICLES

Manufacturer: Rivian Automotive, LLC Test Group: PRIVT00.0192

Vehicle Class(es): PC____, LDT1 (0-3750 lbs. LVW)____, LDT2 (\geq 3,751 lbs. LVW)____,
MDV6 (8,500-10,000 lbs. GVW)X, MDV7 (10,001-14,000 lbs. GVW)____

ZEV Type: NEV____, ZEVX

No. of ZEV Credits per vehicle: 4.0

Fuel Type: Electro-chemical BatteryX, Fuel Cell____, Capacitor____, Other (specify)____

Battery Type(s): Lead Acid____ Nickel Cadmium____ SBLA____ Sodium Sulfur____

Sodium Nickel Chloride____ Nickel Metal Hydride____ Lithium Metal Disulfide____

Zinc Air____ Zinc Bromine____ Lithium Polymer____ Lithium IonX,

Other (specify):_____

Total Battery Weight (kg.): 796 Total Battery Volume (liters): 562

No. of batteries or modules per vehicle: 1 Total Battery Voltage: 400

Charger(s): On-boardX Off-boardX ConductiveX Inductive____.

Drive Motors(s): AC Induction____ DC Brush____. DC Brushless____

Switched Reluctance____ Other (specify): AC Permanent Magnet.

No. of Drive Motors2 Rated motor power 264 kW @ 6000 rpm Max rpm: 16000.

Drive: FWD____ RWD____ 4WD-FT____ 4WD-PTX

Regenerative Braking: No____ YesX FW____ RW____ AWX.

Driver Controlled Regen Braking: YesX No____ Coast Regen Braking: YesX No____.

Air Conditioning: YesX No____, Fuel Fired Heater:¹ Yes____ NoX.

Vehicle Make & Models (If coded, see attachments)	Trans type M5, A4 (If applicable)	GVWR	Curb Weight	ETW or Test Weight	DPA / RLHP or Dyno Coeff. a=, b=, c=
Make: Rivian Model: R1S 22" Dual Large	Automatic	8532 lbs.	6735 lbs.	7000 lbs.	a: 55.14 lbf b: 0.3691 lbf/mph c: 0.02153 lbf/mph ²

Date Issued: 04/26/2023

Revisions:

¹ Fuel fired heaters are not allowed in pure ZEVs for model year 2009 and subsequently.

Suggested ZEV Application Format for Certification

E.O.#. _____ Page 2 of 2

2023 MODEL-YEAR AIR RESOURCES BOARD CERTIFICATION REVIEW SHEET ZEV-PASSENGER CARS, LIGHT-DUTY TRUCKS AND MEDIUM-DUTY VEHICLES

Manufacturer: Rivian Automotive, LLC Test Group: PRIVD00.0192

Range Test Results							
Vehicle ID	Trans	(check one)	(check one)	City Range	System AC (Wh/mi)	System DC (Wh/mi)	Vehicle DC (Wh/mi)
		<u> </u> TW <u> X </u> ETW	<u> </u> DPA <u> </u> RLHP Or dyno coeff.				
R1S040XR22	Auto	7000 lbs.	a: 1.04 lbf b: 0.0810 lbf/mph c: 0.02389 lbf/mph ²	505.78	300.52	259.30	259.30
				Hwy. Range	System AC (Wh/mi)	System DC (Wh/mi)	Vehicle DC (Wh/mi)
				449.75	337.96	291.60	291.60

Battery Test Results: PASS Specific Energy: Wh/kg 169

Remarks:

Date Issued: 04/26/2023 Revisions:

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Application:

Processed By: _____ Date: _____ Reviewed by: _____ Date: _____

Suggested ZEV Application Format for Certification

E.O.#. _____ Page 1 of 2

2023 MODEL-YEAR AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET
ZEV-PASSENGER CARS, LIGHT-DUTY TRUCKS AND MEDIUM-DUTY VEHICLES

Manufacturer: Rivian Automotive, LLC Test Group: PRIVT00.0192

Vehicle Class(es): PC____, LDT1 (0-3750 lbs. LVW)____, LDT2 (\geq 3,751 lbs. LVW)____,
MDV6 (8,500-10,000 lbs. GVW)X, MDV7 (10,001-14,000 lbs. GVW)____

ZEV Type: NEV____, ZEVX

No. of ZEV Credits per vehicle: 4.0

Fuel Type: Electro-chemical BatteryX, Fuel Cell____, Capacitor____, Other (specify)____

Battery Type(s): Lead Acid____ Nickel Cadmium____ SBLA____ Sodium Sulfur____

Sodium Nickel Chloride____ Nickel Metal Hydride____ Lithium Metal Disulfide____

Zinc Air____ Zinc Bromine____ Lithium Polymer____ Lithium IonX,

Other (specify):_____

Total Battery Weight (kg.): 796 Total Battery Volume (liters): 562

No. of batteries or modules per vehicle: 1 Total Battery Voltage: 400

Charger(s): On-boardX Off-boardX ConductiveX Inductive____.

Drive Motors(s): AC Induction____ DC Brush____. DC Brushless____

Switched Reluctance____ Other (specify): AC Permanent Magnet.

No. of Drive Motors2 Rated motor power 264 kW @ 6000 rpm Max rpm: 16000.

Drive: FWD____ RWD____ 4WD-FT____ 4WD-PTX

Regenerative Braking: No____ YesX FW____ RW____ AWX.

Driver Controlled Regen Braking: YesX No____ Coast Regen Braking: YesX No____.

Air Conditioning: YesX No____, Fuel Fired Heater:¹ Yes____ NoX.

Vehicle Make & Models (If coded, see attachments)	Trans type M5, A4 (If applicable)	GVWR	Curb Weight	ETW or Test Weight	DPA / RLHP or Dyno Coeff. a=, b=, c=
Make: Rivian Model: R1S 21" Dual Large R1T 21" Dual Large	Automatic	8532 lbs.	6722 lbs. 6585 lbs	7000 lbs.	a: 45.22 lbf b: 0.6456 lbf/mph c: 0.01633 lbf/mph ²

Date Issued: 04/26/2023

Revisions:

¹ Fuel fired heaters are not allowed in pure ZEVs for model year 2009 and subsequently.

Suggested ZEV Application Format for Certification

E.O.#. _____ Page 2 of 2

2023 MODEL-YEAR AIR RESOURCES BOARD CERTIFICATION REVIEW SHEET ZEV-PASSENGER CARS, LIGHT-DUTY TRUCKS AND MEDIUM-DUTY VEHICLES

Manufacturer: Rivian Automotive, LLC Test Group: PRIVD00.0192

Range Test Results							
Vehicle ID	Trans	(check one)	(check one)	City Range	System AC (Wh/mi)	System DC (Wh/mi)	Vehicle DC (Wh/mi)
		<u> </u> TW <u> X </u> ETW	<u> </u> DPA <u> </u> RLHP Or dyno coeff.				
R1S040XR21	Auto	7000 lbs.	a: -2.18 lbf b: 0.4431 lbf/mph c: 0.01740 lbf/mph ²	520.45	291.59	251.19	251.19
				Hwy. Range	System AC (Wh/mi)	System DC (Wh/mi)	Vehicle DC (Wh/mi)
				470.21	322.74	278.03	278.03

Battery Test Results: PASS Specific Energy: Wh/kg 169

Remarks:

Date Issued: 04/26/2023 Revisions:

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Application:

Processed By: _____ Date: _____ Reviewed by: _____ Date: _____

Suggested ZEV Application Format for Certification

E.O.#. _____ Page 1 of 2

2023 MODEL-YEAR AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET
ZEV-PASSENGER CARS, LIGHT-DUTY TRUCKS AND MEDIUM-DUTY VEHICLES

Manufacturer: Rivian Automotive, LLC Test Group: PRIVT00.0192

Vehicle Class(es): PC____, LDT1 (0-3750 lbs. LVW)____, LDT2 (≥ 3,751 lbs. LVW)____,
MDV6 (8,500-10,000 lbs. GVW)X, MDV7 (10,001-14,000 lbs. GVW)____

ZEV Type: NEV____, ZEVX

No. of ZEV Credits per vehicle: 4.0

Fuel Type: Electro-chemical BatteryX, Fuel Cell____, Capacitor____, Other (specify)____

Battery Type(s): Lead Acid____ Nickel Cadmium____ SBLA____ Sodium Sulfur____

Sodium Nickel Chloride____ Nickel Metal Hydride____ Lithium Metal Disulfide____

Zinc Air____ Zinc Bromine____ Lithium Polymer____ Lithium IonX,

Other (specify):_____

Total Battery Weight (kg.): 796 Total Battery Volume (liters): 562

No. of batteries or modules per vehicle: 1 Total Battery Voltage: 400

Charger(s): On-boardX Off-boardX ConductiveX Inductive____.

Drive Motors(s): AC Induction____ DC Brush____. DC Brushless____

Switched Reluctance____ Other (specify): AC Permanent Magnet.

No. of Drive Motors2 Rated motor power 264 kW @ 6000 rpm Max rpm: 16000.

Drive: FWD____ RWD____ 4WD-FT____ 4WD-PTX

Regenerative Braking: No____ YesX FW____ RW____ AWX.

Driver Controlled Regen Braking: YesX No____ Coast Regen Braking: YesX No____.

Air Conditioning: YesX No____, Fuel Fired Heater:¹ Yes____ NoX.

Vehicle Make & Models (If coded, see attachments)	Trans type M5, A4 (If applicable)	GVWR	Curb Weight	ETW or Test Weight	DPA / RLHP or Dyno Coeff. a=, b=, c=
Make: Rivian Model: R1S 20" All-Terrain Dual Large R1T 20" All-Terrain Dual Large	Automatic	8532 lbs.	6951 lbs. 6925 lbs.	7500 lbs.	a: 60.02 lbf b: 0.3434 lbf/mph c: 0.02458 lbf/mph ²

Date Issued: 04/26/2023

Revisions:

¹ Fuel fired heaters are not allowed in pure ZEVs for model year 2009 and subsequently.

Suggested ZEV Application Format for Certification

E.O.#. _____ Page 2 of 2

2023 MODEL-YEAR AIR RESOURCES BOARD CERTIFICATION REVIEW SHEET ZEV-PASSENGER CARS, LIGHT-DUTY TRUCKS AND MEDIUM-DUTY VEHICLES

Manufacturer: Rivian Automotive, LLC Test Group: PRIVD00.0192

Range Test Results							
Vehicle ID	Trans	(check one)	(check one)	City Range	System AC (Wh/mi)	System DC (Wh/mi)	Vehicle DC (Wh/mi)
		<u> </u> TW <u> X </u> ETW	<u> </u> DPA <u> </u> RLHP Or dyno coeff.				
R1S040XR20	Auto	7500 lbs.	a: 1.10 lbf b: -0.0580 lbf/mph c: 0.02458 lbf/mph ²	458.79	328.74	284.82	284.82
				Hwy. Range	System AC (Wh/mi)	System DC (Wh/mi)	Vehicle DC (Wh/mi)
				410.01	367.86	318.71	318.71

Battery Test Results: PASS Specific Energy: Wh/kg 169

Remarks:

Date Issued: 04/26/2023 Revisions:

----- **ARB USE ONLY** -----
 Application:
 Processed By: _____ Date: _____ Reviewed by: _____ Date: _____

US EPA Fee Form

[Help and EPA Instructions](#)

* Required Field

General Information

Date: 04/20/2023

Process Code *

Submit New Fee Filing Form

Manufacturer Code *

RIV

Manufacturer Name *

Rivian Automotive LLC

Contact Name *

Sep Zaker

Contact Email Address *

sepzaker@rivian.com

Contact Phone *

Calendar Year complete application submitted to EPA *

2023

PLEASE NOTE: These fees apply to complete certification applications received by EPA from January 1, 2023, through December 31, 2023. The applicable fee is determined by the calendar year in which the complete certification application is received, not the model year.

Engine Family / Evaporative Family / Test Group

*

PRIVT00.0192

Certificate Request Type (Industry Sector Code)

Certificate Request Type *

- On-Highway LDV, LTD, MDVPV, HDV Chassis Cert (Federal) (A, B, D, J, T, V)
- On-Highway HDE Dyno Cert (Federal) (E, H)
- On-Highway LD ICI, MDPV ICI, HDV ICI (A, B, D, J, T, V)
- On-Highway Motorcycle (C)
- On-Highway HDV Evap (F)
- On-Highway LDV, LTD, MDVPV, HDV Chassis Cert (California-Only) (A, B, D, J, T, V)
- On-Highway HDE Dyno Cert (California-Only) (E, H)
- Nonroad CI (L)
- Nonroad SI (B, S)
- Locomotive (G, K)
- All Nonroad Recreational, excluding Marine engines (X, Y)
- All Marine (Including IMO) (M, N, W)
- Component Certification for Evaporative Emissions (P)

IMO Name (Required for dual US/IMO Marine Only)

ICI VIN Number (Required for ICIs Only)

Do you qualify for a Reduced Fee? *

Payment Information

Amount Owed

Payment Type *

Online ACH



Comments

EPA Form Number 3520-29

OMB Control No.2060-0545

Approval expires 12/31/2023

The public reporting and recordkeeping burden for this collection of information is estimated to average 12 minutes per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed forms to this address.

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