STATE OF CALIFORNIA
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
CALIFORNIA AIR RESOURCES BOARD

MOBILE SOURCE CERTIFICATION AND COMPLIANCE FEE PAYMENT FORM FOR ON-ROAD APPLICATIONS ONLY

CARB USE ONLY

Invoice Name	MSF230659
Invoice Date	Jan 02, 2024

COMPANY INFORMATION

Company Name	Volvo Car USA LLC
Address	270 THREE POINT DRIVE
City	RIDGEVILLE
State	SC
Zip	29472
Country	United States
Contact Name	Bryant Lowry
Contact Telephone Number	18432763791
Contact Email	bryant.lowry@volvocars.com
CARB Customer Number	CCAM000086

APPLICATION INFORMATION

Payment Row Number	Product Description or File Name	Model Year/Calendar Year	Unique Application Identifier: Test Group, Engine Family, Trailer Family, Vehicle Family, ZEP Family, if applicable (ID listed in payment row must match the unique identifier given to the certification application)	Category Type	Fee Type	Amount
1	PS3 EX90	Model Year 2025	SVVXT00.0Z0E	Light-duty vehicle test group and medium-duty vehicle test group	Zero-Emission	$ 11,627.00

Total Due	$ 11,627.00

I, Bryant Lowry _, attest that any information provided is true, accurate, and complete.

(Responsible Party Signature Here)

VOLVO

Application for Certification – Part 1
2025 Model Year

Test Group	Applicable Standards	Certification Summary Information
SVVXT00.0Z0E	Calif: Exhaust: LEV 3 – ZEV Evap: Not Applicable (Electric) Fed: Exhaust: Tier 3 Bin 0 Evap: Not Applicable (Electric)	SVVXT00.0Z0E

Durability Group: SVVXEEVNNBEV

Evap. Families: Not Applicable (Electric Vehicle)

Durability Group Description: Electric Vehicle / BEV / ZEV

Test Group Description: Electric Vehicle

Carlines Covered:

-Polestar 3 Long Range Dual Motor (20 Inch Wheels)
-Polestar 3 Long Range Dual Motor (21 Inch Wheels)
-Polestar 3 Long Range Dual Motor (22 Inch Wheels)
-Polestar 3 Long Range Dual Motor Performance Pack
-EX90 Twin Motor Performance (21 inch Wheels)
-EX90 Twin Motor Performance (20 and 22 inch Wheels)
-EX90 Twin Motor (21 inch Wheels)
-EX90 Twin Motor (20 and 22 inch Wheels)

Fuel Economy Data Vehicles Tested:

Polestar 3 Long Range Dual Motor (21 Inch Wheels) -Vehicle ID 202509
Configuration 00
Test number:
SVVX10084792 (MCT CD UDDS)
SVVX10084793 (MCT CD HWY)

Polestar 3 Long Range Dual Motor (Perf. Pack- Performance mode) - Vehicle ID 202509
Configuration 02
Test number:
SVVX10084794 (MCT CD UDDS)
SVVX10084796 (MCT CD HWY)

Polestar 3 Long Range Dual Motor (Perf. Pack -Range mode) - Vehicle ID 202509,
Configuration 03
Test number:
SVVX10084795 (MCT CD UDDS)
SVVX10084797 (MCT CD HWY)

Issued: 03 04 2024 / MW
Revised: 06 12 2024 / MW

VOLVO

EX90 Twin Motor (21 Inch Wheels) – Vehicle ID 202512
Configuration 01
Test number:
MCT SVVX10086436

Emission Data Vehicles Tested (Worst Case test for CARB):

EX90 Twin Motor (Performance Mode)– Vehicle ID 202512
Configuration 00
Test number:
MCT SVVX10086437

EPA Response Requested By:
April 01, 2024

For Questions, Contact:
Bruno DiGennaro, Phone 201-218-7106

Issued: 03 04 2024 / MW
Revised: 06 12 2024 / MW

The following sections are Not Applicable for All Electric Vehicle / BEVs / ZEVs:

- S03.02 EVAP Descriptions
- S04.02 EVAP Deterioration Factors
- S04.03 Exhaust Emission Durability Test Procedure
- S04.05 Battery Aging Procedure (Hybrids only)
- S04.06 Battery Aging Simulation Data (Hybrids only)
- S07.02 EVAP Testing
- S07.03.02 SFTP Test Results
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- S09 OBD II System
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- S12.02.01 EDV/DDV Selection
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Section 04.04.01

EXHAUST EMISSIONS DETERIORATION FACTORS

Test Groups: SVVXT00.0Z0E
Durability Group: SVVXEEVNNBEV

Original Test Groups: SVVXT00.0Z0E
Original Durability Group: SVVXEEVNNBEV

Additive CREE DF set to Zero

Durability Data Type: NEW **Drive Mode: Not Applicable** **Emission Cycles: All**

Rounded Additive DFs	THC [gram]	NMHC [gram]	NMOG [gram]	CO [gram]	NOx [gram]	C02 [g/mile]	N2O [g/mile]	CH4 [g/mile]	PM [g/mile]	CREE [g/mile]	NMOG+NOx [g/mile]
4K-50K	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
4K-120K	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	0.000	n.a
4K-150K	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a

Section 05.01
Test Group Description

Test group: SVVXT00.0Z0E

Vehicle Class:	LDT
Certification Summary Information:	SVVXT00.0Z0E
Applicable Emission Standards:	See Certification Summary Information in section 07
Emission standard class:	ZEV / Tier3 Bin0

Engine Type /Engine Configuration /Engine displacement /Cylinder head design / Method of aspiration: N/A

Rated Power & Torque: Front & Rear drive motors:

Polestar 3 Long Range Dual Motor Performance Pack:

Rear
200 kW @ 3898-5000 rpm
490 Nm @ 0-3898 RPM

Front
180 kW @ 4093-5000 rpm
420 Nm @ 0-4093 RPM

Polestar 3 Long Range Dual Motor:

Rear
180 kW @ 4093-10000 rpm
420 Nm @ 0-4093 RPM

Front
180 kW @ 4093-5000 rpm
420 Nm @ 0-4093 RPM

Fuel & Ignition System /(Manufacturer and type) /Knock sensor /Oil Viscosity /Classification: N/A

For electric propulsion system information please see *Section 10 Description of Alternate fueled vehicles*. (Electric motor capacity, voltage, type and the size of electric motor and the battery capacity, voltage, and type of battery technology.)

Section 05.02.01
Engine Code Summary **EV / BEV / ZEV**

Test Group SVVXV00.0Z0A			
Engine Code	**Engine Designation**	**Transmission Type**	**Vehicle Models**
ER_1	E400V12	N/A	EX40 Twin
ER_2	E400V12		EC40 Twin
FD_1	E400V26		Polestar 2 Dual Motor
FF_1	E400V36		Polestar 2 Dual Motor Performance Pack

Test Group SVVXV00.0Z0B			
Engine Code	**Engine Designation**	**Transmission Type**	**Vehicle Models**
FE_1	E400V20	N/A	Polestar 2 Single Motor
EH_1	E400V8		EX40
EH_2	E400V8		EC40

Test Group SVVXV00.0Z0C			
Engine Code	**Engine Designation**	**Transmission Type**	**Vehicle Models**
EK_1	N/A	N/A	EX30 Twin Performance

Test Group SVVXV00.0Z0D			
Engine Code	**Engine Designation**	**Transmission Type**	**Vehicle Models**
EL_1	N/A	N/A	EX30 Single Motor extended range

Test Group SVVXT00.0Z0E			
Engine Code	**Engine Designation**	**Transmission Type**	**Vehicle Models**
EE_1	E400V7	N/A	Polestar 3 Long Range Dual Motor Performance Pack
E2_1	E400V13		EX90 Twin Motor Performance
EA_1	E400V30		Polestar 3 Long Range Dual Motor
EV_1	E400V3		EX90 Twin Motor

Test Group SVVXT00.0Z0F			
Engine Code	**Engine Designation**	**Transmission Type**	**Vehicle Models**
EJ_1	E400V1	N/A	Polestar 3 Long Range Single Motor
EN_1	E400V4		EX90 Single Motor

Test Group SVVXT00.0Z0E			
Engine Code	**Engine Designation**	**Transmission Type**	**Vehicle Models**
E2_2	E400V13	N/A	Polestar 3 Long Range Dual Motor Performance Pack 110kWh
E2_1	E400V13		EX90 Twin Motor Performance "LG battery"
EA_1	E400V30		Polestar 3 Long Range Dual Motor 110kWh
EV_1	E400V3		EX90 Twin Motor "LG battery"

Test Group SVVXT00.0Z0F			
Engine Code	**Engine Designation**	**Transmission Type**	**Vehicle Models**
EN_3	E400V4	N/A	Polestar 3 Long Range Single Motor 110kWh
EN_2	E400V4		EX90 Single Motor "LG battery"

Section 05.02.02
Engine Code Summary PHEV / mHEV

Test Group SVVXJ02.0P30			
Engine Code	**Engine Designation**	**Transmission Type**	**Vehicle Models**
H6_1	B4204TH	S8	XC90 T8 AWD
H6_2			XC60 T8 AWD
H6_3			S90 T8 AWD
H6_4			S60 T8 AWD
H6_5			V60 T8 AWD

Test Group SVVXT02.0S31			
Code	**Designation**	**Type**	**Models**
M1_1	B4204T	S8	XC90 B5 AWD
M1_2			XC60 B5 AWD

Test Group SVVXJ02.0U70			
Engine Code	**Engine Designation**	**Transmission Type**	**Vehicle Models**
L1_1	B4204T	S8	XC40 B5 AWD
L1_2			S60 B5
L1_3			S60 B5 AWD
L1_4			V60CC B5 AWD

Test Group SVVXJ02.0S30			
Engine Code	**Engine Designation**	**Transmission Type**	**Vehicle Models**
06_1	B4204TE	S8	XC90 B6 AWD
06_2			S90 B6 AWD
06_3			V90CC B6 AWD

Section 06.
Test vehicle description

For test vehicle description, please refer to section 12

Certification Summary Information Report

Manufacturer	Volvo Car USA, LLC	**Manufacturer Code**	VVX
Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--
Certificate Number	--	**CARB Executive Order #**	--
Certificate Issue Date	--	**Certificate Revision Date**	--
Certificate Effective Date	--	**Conditional Certificate**	--
CSI Revision #	--	**CSI Submission/Revision Date**	06/19/2024 04:16:48 AM
Model Year	2025		

Certification Summary Information Report

Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--

Test Group Information

CSI Type	Running Change	**Running Change Reference Number**	2024w32_SVVXT00.0E_RC01
GHG Exempt Status	Not Exempt		

Drive Sources and Fuel(s)

Drive Source #1: Electric Motor

Fuel	Basic Fuel Metering System	Lean Burn Strategy Indicator
Electricity	--	No

Hybrid Indicator	No		
Multiple Fuel Storage	--	**Rechargeable Energy Storage System Indicator**	Yes
Multiple Fuel Combustion	--	**Off-board Charge Capable Indicator**	Yes
Fuel Cell Indicator	No	**EPA Vehicle Class**	LDT4
Federal Clean Fuel Vehicle	Yes	**Federal Clean Fuel Vehicle Standard**	ZEV
Federal Clean Fuel Vehicle ILEV	No	**California Partial Zero Emissions Vehicle Indicator**	--
Durability Group Name	SVVXEEVNNBEV	**Durability Group Equivalency Factor**	1.0
Reduced Fee Test Group	No	**Certification Region Code(s)**	FA, CA
Complies with HD GHG 2b/3 regulations?	No		
Introduction into Commerce Date	05/06/2024	**CAP2000 Conditional Certificate?**	N/A
Independent Commercial Importer?	--	**Alternative Fuel Converter Certificate?**	--
SFTP Federal Composite Compliance Identifier	Tier 3	**SFTP Tier 2 Composite CO Option**	No
SFTP LEV-III Composite Compliance Indicator	No		
OBD Compliance Type	CARB	**OBD Demonstration Vehicle Test Group**	SVVXT02.0S31
Test Group OBD Compliance Level	Full - no deficiencies	**Number of Test Group OBD Deficiencies**	0
OBD Deficiencies Comments	Battery Electric Vehicle - No OBD requirements		
Mfr Test Group Comments	Battery Electric Vehicle. 2025MY 4 Variants certified: Polestar3 Long Range Dual Motor (20 Inch wheels), Polestar3 Long Range Dual Motor (21 Inch wheels), Polestar3 Long Range Dual Motor (22 Inch wheels), Polestar3 Long Range Dual Motor (Performance Pack). Polestar3 long range dual motor tested with performance Software to cover for standard Software. Polestar 3 long range Performance Pack variant have been tested in Performance mode and Range mode.For FE Label Range mode and Performance mode test will be weighted. test in Performance Mode will be used for CARB ZEV worst case Different Carlines for 20, 21, 22 Inch wheels and Performance pack have been created for Fuel Economy Label purpose. New Variants added in this test group EX90 Twin motor (21 Inch wheels), EX90 Twin motor (20 and 22 Inch wheels), EX90 Twin motor Performance (21 Inch wheels) and EX90 Twin motor Performance (20 and 22 Inch wheels).Test in performance mode is used for CARB ZEV EDV		
Mfr Exhaust / Evap Standards Comments	--		

Certification Summary Information Report

Test Group	SVVXT00.0Z0E	Evaporative/Refueling Family	--

Models Covered by this Certificate

Carline Manufacturer	Division	Carline	Certification Region Code(s)	Drive System	Trans - Type	- # of Gears	Trans - Lockup
Volvo Car USA, LLC	1 - Volvo Cars of North America, LLC	256 - EX90 Twin Motor (21 Inch Wheels)	California + CAA Section 177 states	All Wheel Drive	Automatic	1	No
Volvo Car USA, LLC	3 - Polestar Automotive USA Inc	253 - Polestar 3 Long Range Dual Motor (21 Inch Wheels)	Federal	All Wheel Drive	Automatic	1	No
Volvo Car USA, LLC	1 - Volvo Cars of North America, LLC	269 - EX90 Twin Motor Performance 20 and 22 Inch Wheels	California + CAA Section 177 states	All Wheel Drive	Automatic	1	No
Volvo Car USA, LLC	3 - Polestar Automotive USA Inc	268 - Polestar 3 Long Range Dual Motor Performance Pack	Federal	All Wheel Drive	Automatic	1	No
Volvo Car USA, LLC	1 - Volvo Cars of North America, LLC	269 - EX90 Twin Motor Performance 20 and 22 Inch Wheels	Federal	All Wheel Drive	Automatic	1	No
Volvo Car USA, LLC	1 - Volvo Cars of North America, LLC	256 - EX90 Twin Motor (21 Inch Wheels)	Federal	All Wheel Drive	Automatic	1	No
Volvo Car USA, LLC	1 - Volvo Cars of North America, LLC	254 - EX90 Twin Motor Performance (21 Inch Wheels)	California + CAA Section 177 states	All Wheel Drive	Automatic	1	No
Volvo Car USA, LLC	1 - Volvo Cars of North America, LLC	270 - EX90 Twin Motor (20 and 22 Inch Wheels)	California + CAA Section 177 states	All Wheel Drive	Automatic	1	No
Volvo Car USA, LLC	3 - Polestar Automotive USA Inc	271 - Polestar 3 Long Range Dual Motor (20 Inch Wheels)	California + CAA Section 177 states	All Wheel Drive	Automatic	1	No
Volvo Car USA, LLC	3 - Polestar Automotive USA Inc	268 - Polestar 3 Long Range Dual Motor Performance Pack	California + CAA Section 177 states	All Wheel Drive	Automatic	1	No
Volvo Car USA, LLC	1 - Volvo Cars of North America, LLC	270 - EX90 Twin Motor (20 and 22 Inch Wheels)	Federal	All Wheel Drive	Automatic	1	No
Volvo Car USA, LLC	3 - Polestar Automotive USA Inc	271 - Polestar 3 Long Range Dual Motor (20 Inch Wheels)	Federal	All Wheel Drive	Automatic	1	No
Volvo Car USA, LLC	1 - Volvo Cars of North America, LLC	254 - EX90 Twin Motor Performance (21 Inch Wheels)	Federal	All Wheel Drive	Automatic	1	No
Volvo Car USA, LLC	3 - Polestar Automotive USA Inc	255 - Polestar 3 Long Range Dual Motor (22 Inch Wheels)	Federal	All Wheel Drive	Automatic	1	No
Volvo Car USA, LLC	3 - Polestar Automotive USA Inc	253 - Polestar 3 Long Range Dual Motor (21 Inch Wheels)	California + CAA Section 177 states	All Wheel Drive	Automatic	1	No
Volvo Car USA, LLC	3 - Polestar Automotive USA Inc	255 - Polestar 3 Long Range Dual Motor (22 Inch Wheels)	California + CAA Section 177 states	All Wheel Drive	Automatic	1	No

Certification Summary Information Report

Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--

Engine Description

Hybrid Type	--	**Hybrid Description**	--
Engine Type	--	**Mfr Engine Description**	--
Engine Block Arrangement	--	**Mfr Engine Block Arrangement Description**	--
Camless Valvetrain Indicator	--	**Oil Viscosity/Classification**	
Number of Cylinders/Rotors	--	**Mechanically Variable Compression Ratio Indicator**	--

After Treatment Device(s) (ATD)

Mfr After Treatment Device (ATD) Comments	--
Direct Ozone Reduction (DOR) Device	--
Mfr Emission Control Device Comments	--

Official Test Numbers

Test Group Fuel	FTP	US06	SC03	Cold CO	Highway	EPA City Litmus Value	EPA City Litmus Threshold	EPA Highway Litmus Value	EPA Highway Litmus Threshold	CREE Weighting Factor
Electricity	--	--	--	--	--	--	--	--	--	--

SFTP LEV-III Official Test Numbers

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

Official Charge Depleting Test Numbers

Test Group Fuel	UDDS	Highway
Electricity	SVVX10084792	SVVX10084793
Electricity	SVVX10084794	SVVX10084796
Electricity	SVVX10084795	SVVX10084797

Certification Summary Information Report

Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--

Hybrid Electric Vehicle And Fuel Cell Information

Rechargable Energy Storage System	Battery(s)	**Rechargable Energy Storage System, if Other**	--
Battery Type	Lithium Ion	**Number of Battery Packs**	1
Total Voltage of Battery Packs	375	**Battery Energy Capacity**	296
Battery Specific Energy	167	**Battery Charger Type**	On-Board
Number of Capacitors	--	**Capacitor Rating (In Farads)**	--
Mfr Capacitor Comments	--		
Hydraulic System Description	--		
Regenerative Braking Type	Electrical Regen Brake		
Regenerative Braking Source	Both	**Driver Controlled Regenerative Braking**	No
Mfr Regenerative Braking Description	--		
Drive Motor(s)/Generator(s)	4		
Motor/Generator Type 1	PMSM	**Rated Motor/Generator Power**	200
Motor/Generator Type 2	PMSM	**Rated Motor/Generator Power**	180
Motor/Generator Type 3	PMSM	**Rated Motor/Generator Power**	173
Motor/Generator Type 4	PMSM	**Rated Motor/Generator Power**	127
Mfr Fuel Cell Description	--		
Fuel Cell On-Board H2 Storage Capacity (kg)	--	**Usable H2 Fill Capacity (kg)**	--
Mfr Hybrid Electric/ Electric Vehicle Comments	Motor PMSM = Permanent Magnet Synch Machine Motor:Polestar3 Long Range Dual motor have PMSM 180 kWatt front and PMSM 180 kWatt rear. Motor:Polestar3 long range Dual Motor Performance Pack have PMSM 180 kWatt front and PMSM 200 kWatt rear. Motor:EX90 Twin Motor have PMSM 173 kWatt front and PMSM 127 kWatt rear Motor:EX90 Twin Motor Performance have PMSM 180kWatt front and PMSM 200 kWatt rear		

Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--

Emission Data Vehicle Information

Vehicle ID / Configuration	202509 / 0	**Manufacturer Vehicle Configuration Number**	0
Original Test Group Name	SVVXT00.0Z0E	**Original Evaporative/Refueling Family**	--
Original Test Vehicle Model Year	2025		

Vehicle Model

Represented Test Vehicle Make	Polestar	**Represented Test Vehicle Model**	Polestar 3 Long Range Dual Motor (21 Inch Wheels)

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	0	**Odometer Correction Factor**	1.0841
Odometer Correction Sign	+ = System Miles is equal to (Test odometer reading * Correction factor) + Initial system miles		
Odometer Correction Units	Kilometers		
Engine Code	EA_1	**Rated Horsepower**	482
Displacement (liters)	0.001		
Air Aspiration Method	Naturally Aspirated	**Air Aspiration Method, if 'Other'**	N/A - BEV
Number of Air Aspiration Devices	--	**Air Aspiration Device Configuration**	--
Charge Air Cooler Type	N/A	**Drive Mode While Testing**	All Wheel Drive
Shift Indicator Light Usage	Not eqipped	**Aged Emission Components**	4,000 (mi)
Curb Weight (lbs)	5704	**Equivalent Test Weight (pounds)**	6000
GVWR (lbs)	6730	**N/V Ratio**	100.2
Axle Ratio	8.77		
Transmission Type	Automatic	**# of Transmission Gears**	1
Transmission Lockup	No	**Creeper Gear**	No

Certification Summary Information Report

Test Group	SVVXT00.0Z0E	Evaporative/Refueling Family	--

Dynamometer Coefficients:

Coefficient Category	Target Coefficients A (lbf)	Target Coefficients B (lbf/mph)	Target Coefficients C (lbf/mph**2)	Set Coefficients A (lbf)	Set Coefficients B (lbf/mph)	Set Coefficients C (lbf/mph**2)	EPA Calculated Total Road Load Horse Power for City/Highway/Evap Coefficients
City/Highway/Evap	39.96	0.2491	0.02088	-18.97	0.2639	0.01866	13.9
Cold CO	43.96	0.274	0.02297	0	0	0	N/A
US06	39.96	0.2491	0.02088	-18.97	0.2639	0.01866	N/A

Emission Control Device Comments Electric vehicle

Manufacturer Test Vehicle Comments Highest selling variant test on Michelin Primacy Tour A/S Front: 265/45R21 / Rear: 295/40R21. TRLHP 13.9, coast down target 26.6. For N/V Ratio an average value is calculated. Average N/V Ratio 100.2 (Front 100.0, Rear 100.3). Test is performed with Polestar Performance Pack Software.

Certification Summary Information Report

Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--

Test #	**SVVX10084792**	**Test Procedure**	**81 - Charge Depleting UDDS**
Exhaust Test # for this Evap Test	--	**Test Fuel Type**	62 - Electricity
Test Date	02/14/2024	**Fuel**	Electricity
Fuel Batch ID	El1	**Fuel Calibration Number**	1
Vehicle Class	LDV/Passenger Car	**DF Type**	Mfr. Determined
Verify Test Lab ID	Volvo Car Corporation		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	3852	**Odometer Units**	K
4WD Test Dyno	Yes	**Diesel Adjustment Factor Usage**	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	**Road Speed Fan Usage**	Yes

PHEV/EV Charge Depleting Test Information

Recharge Event Voltage	233.3	**Recharge Event Energy (kiloWatt-hours)**	120.429
Charge Depleting Range (Calculated miles)	468.26	**Charge Depleting Range (Actual miles)**	468.26
Charge Depleting Range Highway (Calculated miles)	--	**Derived 5-Cycle Coefficient Model Year**	--
All Electric Range Unadjusted (miles)	--	**Equivalent All Electric Range (miles)**	468.26
Number of Charge Depleting Bags/Phases Conducted	1	**Transition Bag/Phase Number**	--

Charge Depleting Bag/Phase #1

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	468.26
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	-0.99
Drive Trace Energy Economy Rating	-1.94
Drive Trace Inertia Work Ratio Rating	-1.75
Integrated DC KW-HRS	6.88
Manufacturer Fuel Economy	131.054

Manufacturer Test Comments UDDS - Multi cycle test method used. Polestar 3 Long Range Dual Motor 20 Inch Wheels tested as highest selling variant DC energy consumption UDDS1 = 245.16 Wh/mi; UDDS2 = 231.20 Wh/mi; UDDS3 = 221.86 Wh/mi; UDDS4 = 224.75 Wh/mi; UDDS weighted = 226.27 Wh/mi; UDDS1 DC discharge energy = 1827.4 Wh; MCT UBE energy = 105,952 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	120,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
CA	120,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--

Certification Summary Information Report

Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--

Test #	**SVVX10084793**	**Test Procedure**	**84 - Charge Depleting Highway**
Exhaust Test # for this Evap Test	--	**Test Fuel Type**	62 - Electricity
Test Date	02/14/2024	**Fuel**	Electricity
Fuel Batch ID	El1	**Fuel Calibration Number**	1
Vehicle Class	LDV/Passenger Car	**DF Type**	Mfr. Determined
Verify Test Lab ID	Volvo Car Corporation		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	3852	**Odometer Units**	K
4WD Test Dyno	Yes	**Diesel Adjustment Factor Usage**	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	**Road Speed Fan Usage**	Yes

PHEV/EV Charge Depleting Test Information

Recharge Event Voltage	233.3	**Recharge Event Energy (kiloWatt-hours)**	120.429
Charge Depleting Range (Calculated miles)	426.23	**Charge Depleting Range (Actual miles)**	426.23
Charge Depleting Range Highway (Calculated miles)	--	**Derived 5-Cycle Coefficient Model Year**	--
All Electric Range Unadjusted (miles)	--	**Equivalent All Electric Range (miles)**	426.23
Number of Charge Depleting Bags/Phases Conducted	1	**Transition Bag/Phase Number**	--

Charge Depleting Bag/Phase #1

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	426.23
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	0.19
Drive Trace Energy Economy Rating	-1.01
Drive Trace Inertia Work Ratio Rating	0.26
Integrated DC KW-HRS	5.1
Manufacturer Fuel Economy	119.2908

Manufacturer Test Comments HWY- Multi cycle test method used.Polestar 3 Long Range Dual Motor 20 Inch wheels tested as highest selling variant DC energy consumption HWFE1 = 250.46 Wh/mi; HWFE2 = 246.70 Wh/mi; HWFE average = 248.58 Wh/mi

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
CA	120,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--

Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--

Emission Data Vehicle Information

Vehicle ID / Configuration	202509 / 2	**Manufacturer Vehicle Configuration Number**	2
Original Test Group Name	SVVXT00.0Z0E	**Original Evaporative/Refueling Family**	--
Original Test Vehicle Model Year	2025		

Vehicle Model

Represented Test Vehicle Make	Polestar	**Represented Test Vehicle Model**	Polestar 3 Long Range Dual M. Perf. SW Perfor mode

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	0	**Odometer Correction Factor**	1.0841
Odometer Correction Sign	+ = System Miles is equal to (Test odometer reading * Correction factor) + Initial system miles		
Odometer Correction Units	Kilometers		
Engine Code	EE_1	**Rated Horsepower**	510
Displacement (liters)	0.001		
Air Aspiration Method	Naturally Aspirated	**Air Aspiration Method, if 'Other'**	N/A - BEV
Number of Air Aspiration Devices	--	**Air Aspiration Device Configuration**	--
Charge Air Cooler Type	N/A	**Drive Mode While Testing**	All Wheel Drive
Shift Indicator Light Usage	Not eqipped	**Aged Emission Components**	4,000 (mi)
Curb Weight (lbs)	5704	**Equivalent Test Weight (pounds)**	6000
GVWR (lbs)	6730	**N/V Ratio**	100.4
Axle Ratio	8.77		
Transmission Type	Automatic	**# of Transmission Gears**	1
Transmission Lockup	No	**Creeper Gear**	No

Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--

Dynamometer Coefficients:

Coefficient Category	Target Coefficients A (lbf)	Target Coefficients B (lbf/mph)	Target Coefficients C (lbf/mph**2)	Set Coefficients A (lbf)	Set Coefficients B (lbf/mph)	Set Coefficients C (lbf/mph**2)	EPA Calculated Total Road Load Horse Power for City/Highway/Evap Coefficients
City/Highway/Evap	48.17	0.2491	0.02225	-14.97	0.229	0.01869	15.5
Cold CO	52.99	0.274	0.02448	0	0	0	N/A
US06	48.17	0.2491	0.02225	-14.97	0.229	0.01869	N/A

Emission Control Device Comments Electric vehicle

Manufacturer Test Vehicle Comments Test on Pirelli Pzero Front: Front: 265/40R22 / Rear: 295/35R22. TRLHP 15.5, coast down target 23.93. For N/V Ratio an average value is calculated. Average N/V Ratio 100.4 (Front 100.0, Rear 100.8). Test is performed with Polestar Performance Pack Software in Performance mode.

Certification Summary Information Report

Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--

Test #	**SVVX10084794**	**Test Procedure**	**81 - Charge Depleting UDDS**
Exhaust Test # for this Evap Test	--	**Test Fuel Type**	62 - Electricity
Test Date	02/15/2024	**Fuel**	Electricity
Fuel Batch ID	El1	**Fuel Calibration Number**	1
Vehicle Class	LDV/Passenger Car	**DF Type**	Mfr. Determined
Verify Test Lab ID	Volvo Car Corporation		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4426	**Odometer Units**	K
4WD Test Dyno	Yes	**Diesel Adjustment Factor Usage**	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	**Road Speed Fan Usage**	Yes

PHEV/EV Charge Depleting Test Information

Recharge Event Voltage	235	**Recharge Event Energy (kiloWatt-hours)**	123.214
Charge Depleting Range (Calculated miles)	411.582	**Charge Depleting Range (Actual miles)**	411.582
Charge Depleting Range Highway (Calculated miles)	--	**Derived 5-Cycle Coefficient Model Year**	--
All Electric Range Unadjusted (miles)	--	**Equivalent All Electric Range (miles)**	411.582
Number of Charge Depleting Bags/Phases Conducted	1	**Transition Bag/Phase Number**	--

Charge Depleting Bag/Phase #1

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	411.582
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	-0.26
Drive Trace Energy Economy Rating	-1.33
Drive Trace Inertia Work Ratio Rating	-0.48
Integrated DC KW-HRS	7.78
Manufacturer Fuel Economy	112.5875

Manufacturer Test Comments

UDDS - Multi cycle test method used. Polestar 3 Long Range Dual Motor Performance pack tested in performance mode for EDV CARB ZEV and this test will be weighted with test in Range mode for FE Label DC energy consumption UDDS1 = 274.81 Wh/mi; UDDS2 = 262.83 Wh/mi; UDDS3 = 251.55 Wh/mi; UDDS4 = 256.07 Wh/mi; UDDS weighted = 257.16 Wh/mi; UDDS1 DC discharge energy = 2045.7 Wh; MCT UBE energy = 105,844 Wh

Certification Summary Information Report

Test Group SVVXT00.0Z0E **Evaporative/Refueling Family** --

Certification Region	Useful Life	Standard Level	Emission Name	Rounded Result	RAF	NMOG/NMHC Ratio	Diesel Adjustment Factor	Add DF	Mult DF	Certification Level	Standard	Pass/Fail
Fed	120,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
CA	120,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--

Certification Summary Information Report

Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--

Test #	**SVVX10084796**	**Test Procedure**	**84 - Charge Depleting Highway**
Exhaust Test # for this Evap Test	--	**Test Fuel Type**	62 - Electricity
Test Date	02/15/2024	**Fuel**	Electricity
Fuel Batch ID	El1	**Fuel Calibration Number**	1
Vehicle Class	LDV/Passenger Car	**DF Type**	Mfr. Determined
Verify Test Lab ID	Volvo Car Corporation		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4426	**Odometer Units**	K
4WD Test Dyno	Yes	**Diesel Adjustment Factor Usage**	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	**Road Speed Fan Usage**	Yes

PHEV/EV Charge Depleting Test Information

Recharge Event Voltage	235	**Recharge Event Energy (kiloWatt-hours)**	123.214
Charge Depleting Range (Calculated miles)	363.336	**Charge Depleting Range (Actual miles)**	363.336
Charge Depleting Range Highway (Calculated miles)	--	**Derived 5-Cycle Coefficient Model Year**	--
All Electric Range Unadjusted (miles)	--	**Equivalent All Electric Range (miles)**	363.336
Number of Charge Depleting Bags/Phases Conducted	1	**Transition Bag/Phase Number**	--

Charge Depleting Bag/Phase #1

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	363.336
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	0.86
Drive Trace Energy Economy Rating	-0.76
Drive Trace Inertia Work Ratio Rating	1.01
Integrated DC KW-HRS	5.97
Manufacturer Fuel Economy	99.39

Manufacturer Test Comments HWY- Multi cycle test method used.Polestar 3 Long Range Dual Motor Performance Pack tested in Performance mode as EDV for CARB ZEV and also used for FE Label when weighted with test in Range Mode DC energy consumption HWFE1 = 295.17 Wh/mi; HWFE2 = 287.45 Wh/mi; HWFE average = 291.31 Wh/mi

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
CA	120,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--

Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--

Emission Data Vehicle Information

Vehicle ID / Configuration	202509 / 3	**Manufacturer Vehicle Configuration Number**	3
Original Test Group Name	SVVXT00.0Z0E	**Original Evaporative/Refueling Family**	--
Original Test Vehicle Model Year	2025		

Vehicle Model

Represented Test Vehicle Make	Polestar	**Represented Test Vehicle Model**	Polestar 3 Long Range Dual M. Perf. SW Range mode

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	0	**Odometer Correction Factor**	1.0841
Odometer Correction Sign	+ = System Miles is equal to (Test odometer reading * Correction factor) + Initial system miles		
Odometer Correction Units	Kilometers		
Engine Code	EE_1	**Rated Horsepower**	510
Displacement (liters)	0.001		
Air Aspiration Method	Naturally Aspirated	**Air Aspiration Method, if 'Other'**	N/A - BEV
Number of Air Aspiration Devices	--	**Air Aspiration Device Configuration**	--
Charge Air Cooler Type	N/A	**Drive Mode While Testing**	All Wheel Drive
Shift Indicator Light Usage	Not eqipped	**Aged Emission Components**	4,000 (mi)
Curb Weight (lbs)	5704	**Equivalent Test Weight (pounds)**	6000
GVWR (lbs)	6730	**N/V Ratio**	100.4
Axle Ratio	8.77		
Transmission Type	Automatic	**# of Transmission Gears**	1
Transmission Lockup	No	**Creeper Gear**	No

Certification Summary Information Report

Test Group	SVVXT00.0Z0E	Evaporative/Refueling Family	--

Dynamometer Coefficients:

Coefficient Category	Target Coefficients A (lbf)	Target Coefficients B (lbf/mph)	Target Coefficients C (lbf/mph**2)	Set Coefficients A (lbf)	Set Coefficients B (lbf/mph)	Set Coefficients C (lbf/mph**2)	EPA Calculated Total Road Load Horse Power for City/Highway/Evap Coefficients
City/Highway/Evap	48.17	0.2491	0.02225	-14.97	0.229	0.01869	15.5
Cold CO	52.99	0.274	0.02448	0	0	0	N/A
US06	48.17	0.2491	0.02225	-14.97	0.229	0.01869	N/A

Emission Control Device Comments Electric vehicle

Manufacturer Test Vehicle Comments Test on Pirelli Pzero Front: Front: 265/40R22 / Rear: 295/35R22. TRLHP 15.5, coast down target 23.93. For N/V Ratio an average value is calculated. Average N/V Ratio 100.4 (Front 100.0, Rear 100.8). Test is performed with Polestar Performance Pack Software in Range mode.

Certification Summary Information Report

Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--

Test #	**SVVX10084795**	**Test Procedure**	**81 - Charge Depleting UDDS**
Exhaust Test # for this Evap Test	--	**Test Fuel Type**	62 - Electricity
Test Date	02/20/2024	**Fuel**	Electricity
Fuel Batch ID	El1	**Fuel Calibration Number**	1
Vehicle Class	LDV/Passenger Car	**DF Type**	Mfr. Determined
Verify Test Lab ID	Volvo Car Corporation		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4952	**Odometer Units**	K
4WD Test Dyno	Yes	**Diesel Adjustment Factor Usage**	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	**Road Speed Fan Usage**	Yes

PHEV/EV Charge Depleting Test Information

Recharge Event Voltage	234	**Recharge Event Energy (kiloWatt-hours)**	120.306
Charge Depleting Range (Calculated miles)	422.545	**Charge Depleting Range (Actual miles)**	422.545
Charge Depleting Range Highway (Calculated miles)	--	**Derived 5-Cycle Coefficient Model Year**	--
All Electric Range Unadjusted (miles)	--	**Equivalent All Electric Range (miles)**	422.545
Number of Charge Depleting Bags/Phases Conducted	1	**Transition Bag/Phase Number**	--

Charge Depleting Bag/Phase #1

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	422.545
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	-0.18
Drive Trace Energy Economy Rating	-1.41
Drive Trace Inertia Work Ratio Rating	-0.41
Integrated DC KW-HRS	7.53
Manufacturer Fuel Economy	118.3804

Manufacturer Test Comments UDDS - Multi cycle test method used. Polestar 3 Long Range Dual Motor Performance pack tested in Range mode and will be weighted with test in Performance mode for FE Label DC energy consumption UDDS1 = 261.24 Wh/mi; UDDS2 = 259.61 Wh/mi; UDDS3 = 248.09 Wh/mi; UDDS4 = 242.23 Wh/mi; UDDS weighted = 250.19 Wh/mi; UDDS1 DC discharge energy = 1946.5 Wh; MCT UBE energy = 105,715 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	120,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
CA	120,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--

Certification Summary Information Report

Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--

Test #	**SVVX10084797**	**Test Procedure**	**84 - Charge Depleting Highway**
Exhaust Test # for this Evap Test	--	**Test Fuel Type**	62 - Electricity
Test Date	02/20/2024	**Fuel**	Electricity
Fuel Batch ID	El1	**Fuel Calibration Number**	1
Vehicle Class	LDV/Passenger Car	**DF Type**	Mfr. Determined
Verify Test Lab ID	Volvo Car Corporation		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4952	**Odometer Units**	K
4WD Test Dyno	Yes	**Diesel Adjustment Factor Usage**	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	**Road Speed Fan Usage**	Yes

PHEV/EV Charge Depleting Test Information

Recharge Event Voltage	234	**Recharge Event Energy (kiloWatt-hours)**	120.306
Charge Depleting Range (Calculated miles)	391.014	**Charge Depleting Range (Actual miles)**	391.014
Charge Depleting Range Highway (Calculated miles)	--	**Derived 5-Cycle Coefficient Model Year**	--
All Electric Range Unadjusted (miles)	--	**Equivalent All Electric Range (miles)**	391.014
Number of Charge Depleting Bags/Phases Conducted	1	**Transition Bag/Phase Number**	--

Charge Depleting Bag/Phase #1

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	391.014
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	1.72
Drive Trace Energy Economy Rating	-0.58
Drive Trace Inertia Work Ratio Rating	2.33
Integrated DC KW-HRS	5.55
Manufacturer Fuel Economy	109.5467

Manufacturer Test Comments HWY- Multi cycle test method used.Polestar 3 Long Range Dual Motor Performance Pack tested in Range mode and used for FE Label when weighted with test in Performance Mode DC energy consumption HWFE1 = 272.47 Wh/mi; HWFE2 = 268.25 Wh/mi; HWFE average = 270.36 Wh/mi

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
CA	120,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--

Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--

Emission Data Vehicle Information

Vehicle ID / Configuration	202512 / 0	**Manufacturer Vehicle Configuration Number**	0
Original Test Group Name	SVVXT00.0Z0E	**Original Evaporative/Refueling Family**	--
Original Test Vehicle Model Year	2025		

Vehicle Model

Represented Test Vehicle Make	Volvo	**Represented Test Vehicle Model**	EX90 Twin Motor Performance

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	0	**Odometer Correction Factor**	1
Odometer Correction Sign	+ = System Miles is equal to (Test odometer reading * Correction factor) + Initial system miles		
Odometer Correction Units	Kilometers		
Engine Code	E2_1	**Rated Horsepower**	510
Displacement (liters)	0.001		
Air Aspiration Method	Naturally Aspirated	**Air Aspiration Method, if 'Other'**	N/A - BEV
Number of Air Aspiration Devices	--	**Air Aspiration Device Configuration**	--
Charge Air Cooler Type	N/A	**Drive Mode While Testing**	All Wheel Drive
Shift Indicator Light Usage	Not eqipped	**Aged Emission Components**	4,000 (mi)
Curb Weight (lbs)	6085	**Equivalent Test Weight (pounds)**	6500
GVWR (lbs)	7470	**N/V Ratio**	101
Axle Ratio	8.77		
Transmission Type	Automatic	**# of Transmission Gears**	1
Transmission Lockup	No	**Creeper Gear**	No

Certification Summary Information Report

Test Group	SVVXT00.0Z0E	Evaporative/Refueling Family	--

Dynamometer Coefficients:

Coefficient Category	Target Coefficients A (lbf)	Target Coefficients B (lbf/mph)	Target Coefficients C (lbf/mph**2)	Set Coefficients A (lbf)	Set Coefficients B (lbf/mph)	Set Coefficients C (lbf/mph**2)	EPA Calculated Total Road Load Horse Power for City/Highway/Evap Coefficients
City/Highway/Evap	46.13	0.2268	0.02104	1	0.142	0.0199	14.7
Cold CO	50.74	0.2495	0.02314	0	0	0	N/A
US06	46.13	0.2268	0.02104	1	0.142	0.0199	N/A

Emission Control Device Comments Electric vehicle

Manufacturer Test Vehicle Comments Test performed for CARB ZEV EDV as worst case. Tested in Performance mode

Certification Summary Information Report

Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--

Test #	**SVVX10086437**	**Test Procedure**	**77 - Multi-Cycle Test (MCT)**
Exhaust Test # for this Evap Test	--	**Test Fuel Type**	62 - Electricity
Test Date	06/03/2024	**Fuel**	N/A
Fuel Batch ID	El1	**Fuel Calibration Number**	1
Vehicle Class	N/A	**DF Type**	Mfr. Determined
Verify Test Lab ID	Volvo Car Corporation		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	5314	**Odometer Units**	K
4WD Test Dyno	Yes	**Diesel Adjustment Factor Usage**	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	**Road Speed Fan Usage**	Yes

PHEV/EV Charge Depleting Test Information

Recharge Event Voltage	234	**Recharge Event Energy (kiloWatt-hours)**	123.704
Charge Depleting Range (Calculated miles)	433.607	**Charge Depleting Range (Actual miles)**	433.607
Charge Depleting Range Highway (Calculated miles)	376.524	**Derived 5-Cycle Coefficient Model Year**	--
All Electric Range Unadjusted (miles)	--	**Equivalent All Electric Range (miles)**	433.607
Number of Charge Depleting Bags/Phases Conducted	8	**Transition Bag/Phase Number**	--

Charge Depleting Bag/Phase #1

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	7.434
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	-3.39
Drive Trace Energy Economy Rating	-3.17
Drive Trace Inertia Work Ratio Rating	-5.68
Integrated DC KW-HRS	2.1327
Manufacturer Fuel Economy	28.688

Charge Depleting Bag/Phase #2

Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	10.248
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	-5.46
Drive Trace Energy Economy Rating	-1.9
Drive Trace Inertia Work Ratio Rating	-6.64
Integrated DC KW-HRS	2.9897
Manufacturer Fuel Economy	29.173

Charge Depleting Bag/Phase #3

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	7.474
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	-0.86
Drive Trace Energy Economy Rating	-1.81
Drive Trace Inertia Work Ratio Rating	-1.54
Integrated DC KW-HRS	1.9164
Manufacturer Fuel Economy	25.641

Charge Depleting Bag/Phase #4

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	251.544
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	0.01
Drive Trace Energy Economy Rating	1.46
Drive Trace Inertia Work Ratio Rating	0.01
Integrated DC KW-HRS	86.3318
Manufacturer Fuel Economy	34.321

Charge Depleting Bag/Phase #5

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	7.476
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	-0.69
Drive Trace Energy Economy Rating	-1.67
Drive Trace Inertia Work Ratio Rating	-1.42
Integrated DC KW-HRS	1.7697
Manufacturer Fuel Economy	23.672

Charge Depleting Bag/Phase #6

Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	10.263
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	-1.2
Drive Trace Energy Economy Rating	-0.92
Drive Trace Inertia Work Ratio Rating	-1.58
Integrated DC KW-HRS	2.7935
Manufacturer Fuel Economy	27.219

Charge Depleting Bag/Phase #7

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	7.45
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	-2.59
Drive Trace Energy Economy Rating	-2.85
Drive Trace Inertia Work Ratio Rating	-4.43
Integrated DC KW-HRS	1.7792
Manufacturer Fuel Economy	23.882

Charge Depleting Bag/Phase #8

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	18.909
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	0.01
Drive Trace Energy Economy Rating	-1.28
Drive Trace Inertia Work Ratio Rating	0.01
Integrated DC KW-HRS	6.4528
Manufacturer Fuel Economy	34.126

Manufacturer Test Comments Multi cycle test method used. 202512 V00 EX90 Twin Motor tested with performance software and performance mode to be used for CARB ZEV worst case testing.

Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--

Emission Data Vehicle Information

Vehicle ID / Configuration	202512 / 1	**Manufacturer Vehicle Configuration Number**	1
Original Test Group Name	SVVXT00.0Z0E	**Original Evaporative/Refueling Family**	--
Original Test Vehicle Model Year	2025		

Vehicle Model

Represented Test Vehicle Make	Volvo	**Represented Test Vehicle Model**	EX90 Twin Motor (21 Inch Wheels)

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	0	**Odometer Correction Factor**	1
Odometer Correction Sign	+ = System Miles is equal to (Test odometer reading * Correction factor) + Initial system miles		
Odometer Correction Units	Kilometers		
Engine Code	EV_1	**Rated Horsepower**	402
Displacement (liters)	0.001		
Air Aspiration Method	Naturally Aspirated	**Air Aspiration Method, if 'Other'**	N/A - BEV
Number of Air Aspiration Devices	--	**Air Aspiration Device Configuration**	--
Charge Air Cooler Type	N/A	**Drive Mode While Testing**	All Wheel Drive
Shift Indicator Light Usage	Not eqipped	**Aged Emission Components**	4,000 (mi)
Curb Weight (lbs)	6074	**Equivalent Test Weight (pounds)**	6500
GVWR (lbs)	7470	**N/V Ratio**	101
Axle Ratio	8.77		
Transmission Type	Automatic	**# of Transmission Gears**	1
Transmission Lockup	No	**Creeper Gear**	No

Certification Summary Information Report

Test Group	SVVXT00.0Z0E	Evaporative/Refueling Family	--

Dynamometer Coefficients:

Coefficient Category	Target Coefficients A (lbf)	Target Coefficients B (lbf/mph)	Target Coefficients C (lbf/mph**2)	Set Coefficients A (lbf)	Set Coefficients B (lbf/mph)	Set Coefficients C (lbf/mph**2)	EPA Calculated Total Road Load Horse Power for City/Highway/Evap Coefficients
City/Highway/Evap	41.41	0.2268	0.02104	-4	0.12	0.0201	14
Cold CO	45.55	0.2495	0.02314	0	0	0	N/A
US06	41.41	0.2268	0.02104	-4	0.12	0.0201	N/A

Emission Control Device Comments Electric vehicle

Manufacturer Test Vehicle Comments Test performed with highest selling Tire for FE label. Test is performed with performance software (496hp) to cover for Performance variants.

Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--

Test #	**SVVX10086436**	**Test Procedure**	**77 - Multi-Cycle Test (MCT)**
Exhaust Test # for this Evap Test	--	**Test Fuel Type**	62 - Electricity
Test Date	05/30/2024	**Fuel**	N/A
Fuel Batch ID	El1	**Fuel Calibration Number**	1
Vehicle Class	N/A	**DF Type**	Mfr. Determined
Verify Test Lab ID	Volvo Car Corporation		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4645	**Odometer Units**	K
4WD Test Dyno	Yes	**Diesel Adjustment Factor Usage**	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	**Road Speed Fan Usage**	Yes

PHEV/EV Charge Depleting Test Information

Recharge Event Voltage	235	**Recharge Event Energy (kiloWatt-hours)**	124.818
Charge Depleting Range (Calculated miles)	453.885	**Charge Depleting Range (Actual miles)**	453.885
Charge Depleting Range Highway (Calculated miles)	423.711	**Derived 5-Cycle Coefficient Model Year**	--
All Electric Range Unadjusted (miles)	--	**Equivalent All Electric Range (miles)**	453.885
Number of Charge Depleting Bags/Phases Conducted	8	**Transition Bag/Phase Number**	--

Charge Depleting Bag/Phase #1

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	7.475
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	-0.88
Drive Trace Energy Economy Rating	-1.35
Drive Trace Inertia Work Ratio Rating	-1.59
Integrated DC KW-HRS	1.8848
Manufacturer Fuel Economy	25.215

Charge Depleting Bag/Phase #2

Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	10.261
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	-2.05
Drive Trace Energy Economy Rating	-0.74
Drive Trace Inertia Work Ratio Rating	-2.52
Integrated DC KW-HRS	2.6539
Manufacturer Fuel Economy	25.864

Charge Depleting Bag/Phase #3

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	7.437
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	-0.38
Drive Trace Energy Economy Rating	-0.78
Drive Trace Inertia Work Ratio Rating	-0.71
Integrated DC KW-HRS	1.8183
Manufacturer Fuel Economy	24.449

Charge Depleting Bag/Phase #4

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	265.577
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	0.01
Drive Trace Energy Economy Rating	2.02
Drive Trace Inertia Work Ratio Rating	0.01
Integrated DC KW-HRS	85.5842
Manufacturer Fuel Economy	32.226

Charge Depleting Bag/Phase #5

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	7.437
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	-0.95
Drive Trace Energy Economy Rating	-1.31
Drive Trace Inertia Work Ratio Rating	-1.44
Integrated DC KW-HRS	1.7436
Manufacturer Fuel Economy	23.445

Charge Depleting Bag/Phase #6

Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	10.257
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	-0.85
Drive Trace Energy Economy Rating	-0.68
Drive Trace Inertia Work Ratio Rating	-1
Integrated DC KW-HRS	2.5941
Manufacturer Fuel Economy	25.291

Charge Depleting Bag/Phase #7

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	7.447
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	-3.06
Drive Trace Energy Economy Rating	-3.38
Drive Trace Inertia Work Ratio Rating	-5.24
Integrated DC KW-HRS	1.7624
Manufacturer Fuel Economy	23.666

Charge Depleting Bag/Phase #8

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	32.101
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	0.01
Drive Trace Energy Economy Rating	-1.1
Drive Trace Inertia Work Ratio Rating	0.01
Integrated DC KW-HRS	10.3333
Manufacturer Fuel Economy	32.19

Manufacturer Test Comments Multi cycle test method used. 202512 V01 EX90 Twin Motor (21 Inch wheels) tested with performance software

Certification Summary Information Report

Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--

Fuel Properties

Fuel Batch ID	**El1**	**Fuel Calibration Number**	**1**
Test Fuel Type	62 - Electricity	**Fuel Batch Calibration Date**	05/01/2020
Fuel Batch Calibration Effective Date	05/01/2020	**Fuel Batch Calibration Ineffective Date**	--
Carbon Weight Fraction NMHC	--	**Carbon Weight Fraction HC**	--
Exhaust Carbon Weight Fraction	--	**Fuel Methanol Volume Fraction**	--
Fuel Density (grams/cubic ft)	--	**Fuel Specific Gravity**	--
Fuel Ethanol Volume Percent (%)	--	**Fuel Net Heating Value (BTU / lb)**	--
Fuel Blend Carbon Weight Fraction	--	**Weight Fraction CO2**	--

Certification Summary Information Report

Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--

Consolidated List of Standards

Exhaust Standards

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

Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
120,000 miles	CREE	--	--	--	--	--	--	0	0
120,000 miles	METHANE	--	--	--	--	--	--	0	0
120,000 miles	N2O	--	--	--	--	--	--	0	0
150,000 miles	CO	--	--	--	--	--	--	0	0
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0
150,000 miles	NOX	--	--	--	--	--	--	0	0
150,000 miles	PM	--	--	--	--	--	--	0	0

Cert Region	California + CAA Section 177 states	**Cert/In-Use Code**	Both
Vehicle Class	LDV/Passenger Car	**Standard Level**	California ZEV
Fuel	Electricity	**Test Procedure**	Charge Depleting UDDS

Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
120,000 miles	CREE	--	--	--	--	--	--	0	0
120,000 miles	METHANE	--	--	--	--	--	--	0	0
120,000 miles	N2O	--	--	--	--	--	--	0	0
150,000 miles	CO	--	--	--	--	--	--	0	0
150,000 miles	CO-COMP	--	--	--	--	--	--	0	0
150,000 miles	NMOG	--	--	1.1	--	--	--	0	0
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0
150,000 miles	NMOG+NOX-COMP	--	--	--	--	--	--	0	0
150,000 miles	NOX	--	--	--	--	--	--	0	0
150,000 miles	PM	--	--	--	--	--	--	0	0

Certification Summary Information Report

Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--

Cert Region	California + CAA Section 177 states	**Cert/In-Use Code**	Both
Vehicle Class	LDV/Passenger Car	**Standard Level**	California ZEV
Fuel	Electricity	**Test Procedure**	Charge Depleting Highway

Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
120,000 miles	CREE	--	--	--	--	--	--	0	0
120,000 miles	METHANE	--	--	--	--	--	--	0	0
150,000 miles	CO	--	--	--	--	--	--	0	0
150,000 miles	NMOG	--	--	1.03	--	--	--	0	0
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0
150,000 miles	NOX	--	--	--	--	--	--	0	0
150,000 miles	PM	--	--	--	--	--	--	0	0

Cert Region	Federal	**Cert/In-Use Code**	Both
Vehicle Class	LDV/Passenger Car	**Standard Level**	Federal Tier 3 Bin 0
Fuel	Gasoline	**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
120,000 miles	CREE	--	--	--	--	--	--	0	999.999
120,000 miles	METHANE	--	--	--	--	--	--	0	0
150,000 miles	CO	--	--	--	--	--	--	0	0
150,000 miles	NMOG	--	--	1.03	--	--	--	0	0
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0
150,000 miles	NOX	--	--	--	--	--	--	0	0
150,000 miles	PM	--	--	--	--	--	--	0	0

Cert Region	California + CAA Section 177 states	**Cert/In-Use Code**	Both
Vehicle Class	LDV/Passenger Car	**Standard Level**	California ZEV
Fuel	Electricity	**Test Procedure**	Multi-Cycle Test (MCT)

Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
120,000 miles	CREE	--	--	--	--	--	--	0	0
150,000 miles	CO	--	--	--	--	--	--	0	0

Certification Summary Information Report

Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--

Cert Region	Federal	**Cert/In-Use Code**	Both
Vehicle Class	LDV/Passenger Car	**Standard Level**	Federal Tier 3 Bin 0
Fuel	Electricity	**Test Procedure**	CVS 75 and later (w/o can. load)

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

Cert Region	Federal	**Cert/In-Use Code**	Both
Vehicle Class	LDV/Passenger Car	**Standard Level**	Federal Tier 3 Bin 0
Fuel	Electricity	**Test Procedure**	Multi-Cycle Test (MCT)

Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
120,000 miles	CREE	--	--	--	--	--	--	0	0
150,000 miles	CO	--	--	--	--	--	--	0	0

Cert Region	California + CAA Section 177 states	**Cert/In-Use Code**	Both
Vehicle Class	LDV/Passenger Car	**Standard Level**	California ZEV
Fuel	Electricity	**Test Procedure**	CVS 75 and later (w/o can. load)

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

Certification Summary Information Report

Test Group	SVVXT00.0Z0E	**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	N2O	Nitrous Oxide
CO	Carbon Monoxide	SPITBACK	Spitback Hydrocarbon in grams
CO2	Carbon dioxide	AMP-HRS	Integrated Amp-hours
CREE	Carbon-Related Exhaust Emissions	START-SOC	System Start State of Charge Watt-hours
OPT-CREE	Optional Carbon-Related Exhaust Emissions	END-SOC	System End State of Charge Watt-hours
NOX	Nitrogen Oxide	ACT-DISTANCE	Actual Distance Driven (miles)
PM	Particulate Matter	AS-VOLT	Average System Voltage
PM-COMP	SFTP Composite Particulate Matter	CO2 BAG 1	Bag 1 Carbon Dioxide
HC-NM	Non-methane Hydrocarbon	CO2 BAG 2	Bag 2 Carbon Dioxide
OMHCE	Organic material Hydrocarbon Equivalent	CO2 BAG 3	Bag 3 Carbon Dioxide
OMNMHCE	Organic material non-methane HC equivalent	CO2 BAG 4	Bag 4 Carbon Dioxide
NMOG	Non-methane organic gases	NMOG+NOX	Non-methane organic gases plus Nitrogen Oxides
HCHO	Formaldehyde	NMOG+NOX-COMP	SFTP Composite Non-methane Organic Gases + Nitrogen Oxides
H3C2HO	Acetaldehyde	DT-IWRR	Drive Trace Inertia Work Ratio Rating
HC-NM+NOX	SFTP Non-methane Hydrocarbon + Nitrogen Oxides for US06 or SC03	DT-ASCR	Drive Trace Absolute Speed Change Rating
HC-NM+NOX-COMP	SFTP Composite Non-methane Hydrocarbon + Nitrogen Oxides	DT-EER	Drive Trace Energy Economy Rating
CO-COMP	SFTP Composite Carbon Monoxide	COMB-CREE	Combined Carbon-Related Exhaust Emissions
ETHANOL	C2H5OH - Ethanol	COMB-OPT-CREE	Combined Optional Carbon-Related Exhaust Emissions
FE BAG 1	Bag 1 Fuel Economy	HC-TOTAL-EQUIV	Total Hydrocarbon equivalent - Evap only
FE BAG 2	Bag 2 Fuel Economy	METHANE-COMB	Combined CH4 for HD 2b/3 vehicles only
FE BAG 3	Bag 3 Fuel Economy	N2O-COMB	Combined Nitrous Oxide for HD 2b/3 vehicles only
FE BAG 4	Bag 4 Fuel Economy	LEAK-DIA	Effective Leak Diameter (inches)
MFR FE	Manufacturer Fuel Economy	LEAK-GAS CAP	Gas Cap Leakage (cc/min)
HC	Hydrocarbon for Running Loss and ORVR	CO2-COMB	Combined Carbon Dioxide for HD 2b/3 Vehicles Only
METHANE	CH4 - Methane	KW-HRS	Integrated DC KW-HRS
METHANOL	CH3OH - Methanol		

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

Certification Summary Information Report

Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--
B5	Federal Tier 2 Bin 5	L3SULEV150	California LEV-III SULEV150
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

Certification Summary Information Report

Test Group	SVVXT00.0Z0E	**Evaporative/Refueling Family**	--
R	2-Wheel Drive, Rear		

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

Test Group:	SVVXT00.0Z0E										
Vehicle ID: 202509	Vehicle Model:	Polestar 3 Long Range Dual Motor									
Date	**Test No. VCC**	**Test No. Verify**	**Odo Reading km**	**System Mileage km**	**Odometer Correction Factor**	**Recharge energy (AC/Whr)**	**kWh/100 miles UDDS**	**kWh/100 miles HWY**	**All Electric Range UDDS (miles)**	**All Electric Range HWY (miles)**	**Test Comments**
02 14 2024	E2_240214_004	SVVX10084792 (UDDS) SVVX10084793 (HFEDS)	3852	4176	1.0841	120429	25.72	28.25	468.26	426.23	V00 MCT Polestar 3 Long Range Dual Motor (21 Inch Wheels) Tested in Range mode
02 15 2024	E2_240215_001	SVVX10084794 (UDDS) SVVX10084796 (HFEDS)	4426	4798	1.0841	123214	29.94	33.91	411.58	363.34	V02 MCT Polestar 3 Long Range Dual Motor Performance Pack Tested in Performance mode (CARB EDV Worst Case)
02 15 2024	E2_240220_001	SVVX10084795 (UDDS) SVVX10084797 (HFEDS)	4952	5368	1.0841	120306	28.47	30.77	422.54	391.01	V03 MCT Polestar 3 Long Range Dual Motor Performance Pack Tested in Range mode

All tests are performed with Performance Software

Test Group: SVVXT00.0Z0E Vehicle ID: 202512 Vehicle Model: EX90 Twin Motor											
Date	**Test No. VCC**	**Test No. Verify**	**Odo Reading km**	**System Mileage km**	**Odometer Correction Factor**	**Recharge energy (AC/Whr)**	**kWh/100 miles UDDS**	**kWh/100 miles HWY**	**All Electric Range UDDS (miles)**	**All Electric Range HWY (miles)**	**Test Comments**
06 03 2024	S1_240603_009	SVVX10086437	5314	5314	1.000	123704	28.53	32.85	433.61	376.52	V00 MCT EX90 Twin Motor Tested in Performance mode (CARB EDV Worst Case)
05 30 2024	S1_240530_004	SVVX10086436	4645	4645	1.000	124818	27.50	29.46	453.89	423.71	V01 MCT EX90 Twin Motor (21 Inch Wheels) Tested in Range mode

Section 10.01
DESCRIPTION OF ALTERNATE-FUELED VEHICLES

For 2025MY, Volvo does offer alternate fueled vehicle in the Test Group **SVVXT00.0Z0E** (Electric Vehicle / BEV / ZEV) using:

Front drive unit

Drive motor type : PMSM (Permanent Magnet Synchronous Machine)

For maximum Power and Torque, please see section 05.01 “Test Group Description”
Single-speed transmission

Rear drive unit

Drive motor type : PMSM (Permanent Magnet Synchronous Machine)

For maximum Power and Torque, please see section 05.01 “Test Group Description”
Single-speed transmission

High voltage battery

NCM battery pack
Anode: Graphite
Cathode: NCM
111 kWh pack nominal energy capacity
107 kWh pack useable energy capacity
375 Volt (Nominal Voltage)
Battery Duty Cycle Usage: 96%-0%
Battery Manufacturer: Volvo (Battery Cells and modules by CATL)

296 Ah Three hour discharge rate (C/3) energy capacity
- C/3 Rate (A): 99 A
- C/3 Temperature (Celsius): battery temperature at start of test: 25 deg C
- C/3 Battery Capacity Measurement (AH) Test1: 298,36 Ah
- C/3 Battery Capacity Measurement (AH) Test2: 299,82 Ah
- C/3 Battery Capacity Measurement (AH) Test3: 299,57 Ah

High Voltage Battery Charging:

Charge power: 11kW
Nominal charging voltage: Range 85V-265V
Nominal charging current: 48 Ampere

Regenerative braking system

The vehicle can also generate current to the high voltage batteries using kinetic energy.
By lightly pressing the brake pedal the vehicle’s kinetic energy is converted to electric energy which is used to charge the high voltage battery.

Start and stop charging

You can charge your car by using either AC [1] (Alternating current) charging or DC [2] (Direct current) charging. How you start and stop the charging process depends on the type of charging you use.

AC charging is the recommended charging mode for everyday charging as it maintains the condition of the battery over time. AC charging can be used if you are charging from a charging station, a charging point at home or a regular household socket. DC charging is available at certain charging stations and charges your car faster than AC charging. DC charging can be used when you need to recharge your battery immediately.

TIP

You can also start and stop charging from the Polestar app.

Starting AC charging

AC charging can be done at certain charging stations, from a charging point at home or from a regular household socket. The cable you need depends on the charging mode.

To initiate charging, make sure:

- the car is in park.
- the charging settings are set up according to your preferences.

If you are using a regular household socket, also make sure it meets the safety requirements for charging.

WARNING

Do not connect any equipment other than the charging cable between the charging source and the car's charging port. [1] (This includes extension leads, socket splitters, socket adaptors, external timers, overvoltage protection devices and similar devices.) It can cause malfunction, damage or electric shock.

1. Connect the charging cable to the charging source. Some charging stations have a permanently attached charging cable that you connect directly to your car.

2. Open the charging lid by lightly pressing on its rearmost end.

3. Remove any protective cover from the cable connector.

IMPORTANT

To avoid damage to the car, position the connector's protective cover so that it does not touch the car.

4.
5. Insert the connector into the charging port.

⇒ When the connector is fully inserted it locks into place. Charging starts within a few seconds.

6.

You can see the charging status in the charging port and in the driver display.

Recommended action if charging does not start

First, disconnect the cable from the car's charging port, then from the charging source. Wait a moment before reconnecting it. If the problem persists, contact Polestar Customer Support.

Starting DC charging

DC charging is available at certain charging stations.

DC charging stations have permanently attached charging cables, so you don't need to use your own.

To initiate charging, make sure:

- the car is in park.
- to check the charging station for any instructions before you begin.

1. Open the charging lid by lightly pressing on its rearmost end.

2. Remove any covers from the port and cable connector.

3. Use both hands to press the cable's connector all the way into the charging port. Make a habit of pushing the charging cable upwards for a couple of seconds after inserting it to ensure connection and locking.

⇒ The charging cable automatically locks in place after a few seconds.

4.
5. After confirming that the cable is locked in place, follow the charging station's instructions for charging authorisation.

⇒ Charging starts after an insulation test has been completed by the charging station. It can take a minute to

6.

You can see the charging status in the charging port and in the driver display.

Stopping AC charging

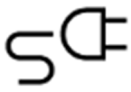
You can stop the charging process at any time.

IMPORTANT

Stop the charging session before attempting to unplug the cable from the car's charging port. If you do not, you may cause damage to the cable or to the system.

Make sure the car is unlocked.

1. Stop charging by pressing the release button next to the charging port.



⇒ The charging cable unlocks from the charging port.

2. Unlock the charging cable using the handle on the cable.

3. Unplug the charging cable from the car.

NOTE

If the charging cable isn't unplugged within a short period of time, the cable will lock again and charging will resume.

4.

5. If available, reattach the protective cover on the cable connector.

6. Depending on the cable you have used:

- Unplug the charging cable from the charging station.
- Reattach the charging cable to the station's storage socket.

7. Close the charging lid.

TIP

You can also stop the charging process in the car's centre display or via the charging station.

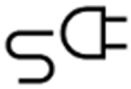
Stopping DC charging

You can stop the charging process at any time.

IMPORTANT

Stop the charging session before attempting to unplug the cable from the car's charging port. If you do not, you may cause damage to the cable or to the system.

1. Stop charging by pressing the release button next to the charging port.



⇒ The charging cable's handle unlocks. This may take a couple of seconds.

2. Unlock the charging cable using the handle on the cable.

3. Unplug the charging cable from the car.

4. If available, reattach the protective cover on the cable connector.

5. Reattach the charging port's protective cover and close the charging lid.

TIP

You can also stop the charging process in the car's centre display or via the charging station.

Charging status in the charging port

You can see the car's current charging status in the charging port.

Colour	Colour name	Description
	White	Charging port location light.
	Yellow	The charging cable is attached and charging initiates.
	Yellow (pulsating)	The charging process is stopping.
	Green (pulsating)	Charging.
	Blue	Charging is scheduled for later.
	Green	Charging complete.

	Blue (pulsating)	Discharging.
	Red (pulsating)	The car is locked and no key is detected when the cable release button is pressed. Make sure a key is within range or unlock the car with an NFC [1] (Near field communication) key before trying again. If the problem persists, contact Polestar Customer Support.
	Red	Charging fault. Check the displays for additional information. Always make sure that the charging cable is correctly connected to the car's charging port and that the power source, such as the cable or the charging station, works correctly. If an error is indicated, try to disconnect the cable from the car then reconnect it and re-initiate charging to see if the problem is solved. If the problem persists, contact Polestar Customer Support.

Charging your car

Learn how charging works and how you can make each charging session more efficient.

In this section, you can find out more about the different charging types, charging settings, and how to start and stop charging. You can also read about other types of charging-specific information.

Charging types

Learn more about the different types of charging for your car and how to initiate charging for each type.

⚠ WARNING

Charging components and high voltage

- The car's charging components carry hazardous currents and voltages. They must be handled with care. Do not perform actions that are not clearly described in the user manual.
- Do not modify or make your own repairs to any charging components. Contact an authorised Volvo workshop for any required repairs or servicing.
- Installation and repairs of at-home charging equipment[82] must be performed by a licensed electrician.
- Damage to the car's high voltage components, including the traction battery, can cause overheating, fire and serious personal injury. If there is a risk of damage, such as after flooding, fire or a collision, do not use the car. Contact an authorised Volvo workshop as soon as possible. If possible, leave the car outdoors and away from people, buildings, property and other objects that could catch or spread fire.

If you have a pacemaker or similar device

Charging may affect the operation of your pacemaker. Anyone with implanted pacemakers or biventricular pacing pulse generators without defibrillation capability

82 Including any work on the electric metre housing or power distribution service panel.

should not attempt to charge the car on their own. Ask someone else to charge your car. You should also stay away from the chargers and charging cables while charging the car.

NOTE

12 V battery charging
The car keeps the 12 V battery charged as long as the high voltage battery has sufficient charge.
Condensation during charging
During charging, condensation from the cooling system can collect under the car. This is perfectly normal and caused by the traction battery cooling down.

AC charging at a charging station or from a charging point at home

AC charging points are available at a variety of charging locations, both public and private. An AC charging point can be installed at home and is the recommended source for regular charging.

AC charging with household socket

You can charge your car from a regular household socket. This type of charging is only suitable for occasional charging and is not recommended for regular use. If you are planning to charge your car from a household socket, there are additional steps you need to take to ensure it is done safely.

WARNING

Do not use visibly worn or damaged electrical sockets as they could cause overheating, electric shock or personal injury.

IMPORTANT

- The car must only be charged from approved, earthed household sockets.
- Do not exceed the maximum permitted charging current when charging via a regular household socket. Limits imposed by local and national charging recommendations may apply.
- Ensure that the household socket fuse can handle the charging cable's specified current before you start charging. If you are uncertain, the socket must be checked by a qualified and licensed electrician.
- Never connect the charging cable when there is a risk of thunderstorm or lightning strike.

DC fast charging

DC fast charging is available at certain charging stations. These charging stations deliver very high power, as well as shorter charging times.

NOTE

Charging stations with support for fast charging are usually clearly marked CCS or Combo.

Charging stations with support for fast charging are usually clearly marked with GB/T DC.

Charging stations with support for fast charging are usually clearly marked with CHAdeMO.

Charging cables

There are different charging cables to use when you charge your car. Mode 3 cables are the standard cable to use when charging electric cars. There are different versions of the mode 2 cable available. Mode 2 cables can be used as an emergency solution, but it is not recommended to use them as a daily charging method.

Charging cables

When using a charging cable for the first time, always check to make sure it's compatible with your car.

Charging cable recommendations and use

⚠ WARNING

High voltage
The cable is connected to a hazardous electrical system. Contact with high voltage current can cause fatality or serious personal injury.
Damaged cables
Do not use a charging cable that shows any signs of damage or wear. It can cause an electric shock. A damaged or malfunctioning charging cable provided by Volvo may only be repaired at an authorised workshop. Contact an authorised Volvo workshop for more information. If you are charging at a charging station, try another cable or charging point.
Excessive wear and debris
Remember to always check the charging cable's connector for excessive wear or debris. Do not touch the charging cable's connector or use any tools to attempt to remove debris from the charging cable. It can cause an electric shock.

Public charging stations are in constant use and can be exposed to more wear and tear than a private charging station.
Cable placement
Remember to place the cable where there is minimal risk of it getting damaged or causing personal injury. A carelessly placed cable can easily get run over or tripped over.
Child safety
Keep children away from charging cables, especially when the cables are plugged in.

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IMPORTANT

Adaptors
Do not use any adaptors between the charging cable and the electrical socket of the car.
Liquids and cables
Do not submerge the charging cable or its components in liquid. If you need to clean the cable, use a clean cloth lightly dampened with water. If needed, use a mild detergent but never use chemicals or strong solvents.
Only use recommended cables

- Only use the cables originally provided with your car or that are recommended by Volvo.
- Volvo takes no responsibility for damage or injury caused by charging equipment not recommended by Volvo.

NOTE

Recommended cables
Volvo recommends a charging cable according to GB/T 20234.1-2015 and GB/T 20234.2-2015 that supports temperature monitoring.

Volvo recommends a charging cable according to SAE J1772 that supports temperature monitoring.

Volvo recommends a charging cable according to IEC 62196 and IEC 61851 that supports temperature monitoring.
Charging cable instructions
Before using a charging cable, make sure to read the instructions from the cable's manufacturer.

Some charging stations have a permanently attached charging cable. Be sure to follow the charging station's instructions on how to use it.

Mode 3 cable for charging stations

You can use this type of cable to charge your car at AC charging stations.

Mode 2 charging cables

Use a charging cable with a household plug to charge the car from an ordinary household socket, such as when no other charging options are available.

IMPORTANT

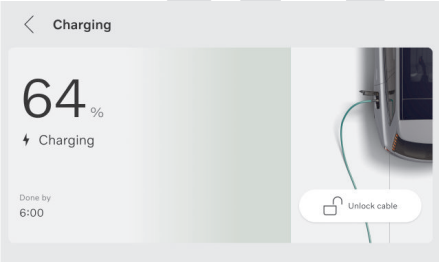
Do not use this type of charging as a daily charging method.

Charging view and settings

In the charging view, you can access information about the charging process, start or stop the charging, unlock the charging cable and set different charging settings. You can customise the charging settings according to your preferences. The charging view appears automatically when charging is initiated.

NOTE

The information content can vary depending on the current charging status.



The following information, functions and settings are available in the centre display:

- Current battery level
- Target battery level
- Amperage[83]
- Charging status
- Set a target battery level
- Limit the electrical current for AC charging
- Add and manage schedules
- Set a minimum battery level
- Unlock the charging cable
- Activate Plug & Charge

TIP

You can also access information about battery level, charging status and the charging process in the Volvo Cars app.

You can also access the charging view through the settings in the centre display.

83 Amperage is only shown if a limit was set.

Setting a target battery level for charging

You can set a target battery level by selecting a value in the charging view. This can help you to maintain good charging performance and battery longevity.

There are two preset options: **Daily drive** and **Long trip**. **Daily drive** is the recommended charging level which charges your car up to 90%. **Long trip** charges your car up to 100% and can be selected if you want the maximum range possible from your car. You can also choose to customise the target battery level value by selecting **Custom**.

TIP

You can also set a target battery level for charging from the Volvo Cars app.

1. Press the car symbol in the bottom bar and go to **Settings**.
2. Go to **Charging** ➔ **Target battery level**.
3. Select your preferred battery level.
   > The target battery level value changes. The value is saved until you change it again.

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Setting the amperage limit for charging

You can set an amperage limit for AC charging by selecting a value in the charging view. Ampere, often written as "amp" or "A", is the unit for electric current.

An amperage limit can be set for a specific location. The amperage limit setting is automatically applied when you charge your car in that location.

1. Press the car symbol in the bottom bar and go to **Settings**.
2. Go to **Charging ➔ Limit charging current**.
3. Turn the function on.[84]
4. Adjust the amperage limit to your preferred value.
   > The amperage limit changes and the value is saved until you change it again. When your car is charging, the amperage limit is shown in the centre display.

NOTE

The amperage may be limited by the charging station, charging cable or the car. There is no guarantee that the car can be charged with the specified amperage if it is higher than what is permitted by the charging station or charging cable.

Adding and managing charging schedules

You can set and activate a charging schedule for your car in the charging view. This means you can specify when you want the car to charge, such as when plugged in overnight.

TIP

You can also add a charging schedule from the Volvo Cars app.

A charging schedule can be set for a specific location. When you arrive at that specific location, the charging schedule is automatically applied.

1. Press the car symbol in the bottom bar and go to **Settings**.
2. Go to **Charging ➔ Schedules**.
3. Press **Add** to add a charging schedule.
4. Select start and stop times for the charging schedule by using the timer and then press **Save**.
5. Activate the schedule by turning it on.
   > The timer is active and the scheduled charging time is visible in the charging view.

84 Only available for AC charging.

DRAFT

You can also modify the schedule by adjusting start and stop times.

Deactivate the schedule by turning it off. The timer is not active and no scheduled charging is planned.

NOTE

You can also override a charging schedule and charge straight away by pressing **Charge now** in the Volvo Cars app. This option is available if a charging schedule is active, your car is in park and the charging cable is connected.

Setting a minimum battery level for charging

You can set a minimum battery level by selecting a value in the charging view. This ensures that your car always charges to the minimum level, regardless of any other settings.

A minimum battery level can be set for a specific charging location. The battery level setting is automatically applied when you charge your car in that location. If a charging schedule is active, charging pauses until the scheduled start time when the minimum battery level is reached.

1. Press the car symbol in the bottom bar and go to **Settings**.
2. Go to **Charging ➔ Minimum battery level**.
3. Turn the function on.
4. Adjust the minimum battery level to your preferred value.
   > The minimum battery level changes and the value is saved until you change it again.

Start and stop charging

You can charge your car by using either AC[85] charging or DC[86] charging. How you start and stop the charging process depends on the type of charging you use.

AC charging is the recommended charging mode for everyday charging as it maintains the condition of the battery over time. AC charging can be used if you are charging from a charging station, a charging point at home or a regular household socket. DC charging is available at certain charging stations and charges your car faster than AC charging. DC charging can be used when you need to recharge your battery immediately.

85 Alternating current
86 Direct current

DRAFT

Starting AC charging

AC charging can be done at certain charging stations, from a charging point at home or from a regular household socket. The cable you need depends on the charging mode.
To initiate charging, make sure:

- the car is in park.
- the charging settings are set up according to your preferences.

If you are using a regular household socket, also make sure it meets the safety requirements for charging.

⚠ WARNING

Do not connect any equipment other than the charging cable between the charging source and the car's charging port.[87] It can cause malfunction, damage or electric shock.

1. Connect the charging cable to the charging source. Some charging stations have a permanently attached charging cable that you connect to your car.
2. Open the charging lid by lightly pressing on its rearmost end.

3. Remove any protective cover from the cable connector.

IMPORTANT

To avoid damage to the car, position the connector's protective cover so that it does not touch the car.

4. Insert the connector into the charging port.
   > When the connector is fully inserted it locks into place. Charging starts within a few seconds.

You can see the charging status in the charging port and in the driver display.

Recommended action if charging does not start

First, disconnect the cable from the car's charging port, then from the charging source. Wait a moment before reconnecting it. If the problem persists, contact an authorised Volvo workshop.

87 This includes extension leads, socket splitters, socket adaptors, external timers, overvoltage protection devices and similar devices.

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Starting DC charging

DC charging is available at certain charging stations.

DC charging stations have permanently attached charging cables, so you don't need to use your own.

WARNING

- Public charging stations are in constant use and can be exposed to more wear and tear than a private charging station. Remember to always check the charging cable's connector for excessive wear or debris.
- Do not touch the charging cable's connector or use any tools to attempt to remove debris from the charging cable. It can cause an electric shock.
- Do not use a charging cable that shows any signs of damage or wear. It can cause an electric shock. Try another cable or charging point at the charging station.
- Ensure that the charging cable's connector connects all the way into the charging port. A worn connector may prevent a safe connection to your car.

To initiate charging, make sure:

- the car is in park.
- to check the charging station for any instructions before you begin.

1. Open the charging lid by lightly pressing on its rearmost end.

2. Remove any covers from the port and cable connector.
3. Use both hands to press the cable's connector all the way into the charging port. Make a habit of pushing the charging cable upwards for a couple of seconds after inserting it to ensure connection and locking.
   > The charging cable automatically locks in place after a few seconds.
4. After confirming that the cable is locked in place, follow the charging station's instructions for charging authorisation.
   > Charging starts after an insulation test has been completed by the charging station. It can take a minute to complete.

You can see the charging status in the charging port and in the driver display.

DRAFT

Stopping AC charging

You can stop the charging process at any time.

IMPORTANT

Stop the charging session before attempting to unplug the cable from the car's charging port. If you do not, you may cause damage to the cable or to the system.

1. Stop charging by pressing the release button next to the charging port.

   > The charging cable unlocks from the charging port.
2. Unlock the charging cable using the handle on the cable.
3. Unplug the charging cable from the car.

   NOTE

   If the charging cable isn't unplugged within a short period of time, the cable locks again and charging resumes.
4. If available, reattach the protective cover on the cable connector.
5. Depending on the cable you have used:
   - Unplug the charging cable from the charging station.
   - Reattach the charging cable to the station's storage socket.
6. Close the charging lid.

TIP

You can also stop the charging process from the charging station or by pressing the **Unlock cable** button in the car's centre display.

Stopping DC charging

You can stop the charging process at any time.

IMPORTANT

Stop the charging session before attempting to unplug the cable from the car's charging port. If you do not, you may cause damage to the cable or to the system.

1. Stop charging by pressing the release button next to the charging port.

   > The charging cable's handle unlocks. This may take a couple of seconds.
2. Unlock the charging cable using the handle on the cable.
3. Unplug the charging cable from the car.
4. If available, reattach the protective cover on the cable connector.
5. Reattach the charging port's protective cover and close the charging lid.

TIP

You can also stop the charging process from the charging station or by pressing the **Unlock cable** button in the car's centre display.

Releasing the charging cable

If the charging cable doesn't automatically release after you have stopped the charging, there are some steps you can try.

The charging cable usually releases automatically when you have stopped the charging. However, if the charging cable is left in the charging port for a while after charging has stopped, the charging cable is automatically locked in again.[88]

Make sure that the key is within range and that the car is unlocked.

1. Stop charging by pressing the release button next to the charging port or by pressing **Unlock cable** in the centre display.
2. If you're charging at a public charging station, follow the instructions in the charging station's interface to stop charging.
3. Carefully wiggle the charging cable.
4. Lock and unlock the car.
5. Lock the car and wait until the LED on the car's charging port turns off. This can take some time. After that, unlock the car and try to stop charging via the release button or via the centre display again.

If the charging cable still doesn't release, stop charging via the charging station, charging point or household socket in one of the following ways:

- Charging via a public charging station: Contact the charging station's customer service to get help to stop the charging.
- Charging via a home charging point: Safely disconnect the power supply to your home charging point.
- Charging via a household socket: Unplug the cable from the household socket.

If the problem persists, contact an authorised Volvo workshop.

88 Applies to AC charging.

Manually releasing the charging cable

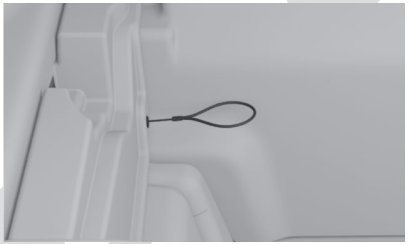
If the charging cable doesn't release from the car after you have stopped the charging, you can use the emergency release handle. Never use the emergency release handle when charging is in progress.

1. Open the boot and the cargo hatch.
2. Locate the emergency release handle on the left side of the boot.

3. **⚠ WARNING**

   Before using the emergency release handle, check the driver display or the charging port to make sure the charging process is stopped. The emergency release handle should not be used when charging is in progress.

   Carefully pull the emergency release handle until you feel resistance.



   > The charging cable unlocks from the charging port.

   ⓘ NOTE

   The emergency release handle automatically retracts when the next charging cycle is started.

4. Wait for about 5 seconds before unplugging the charging cable from the car.
5. Close the boot.

If the problem persists, contact an authorised Volvo workshop.

Charging time and statuses

Learn more about charging times so that you have an idea of what to expect in different situations and what the different charging statuses mean.

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Charging times

The time it takes to charge your car depends on the charging type and several factors. The charging times mentioned are approximate.
Some examples of factors that can affect the charging time are:

- preconditioning
- ambient temperature
- battery temperature
- charging equipment
- battery size
- battery condition and car condition
- infrastructure
- charging settings such as amperage limit.

Fast charging from a DC charging station

Station power (kW)[94]	Charging time (minutes)[95]
50	97
200	32
250[96]	30

NOTE

The battery can charge the fastest when the battery level is low. After reaching 30%, the maximum charging speed gradually decreases as the battery level increases.

DRAFT

TIP

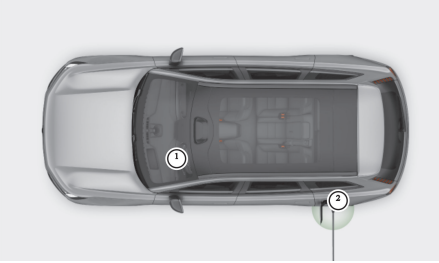
When you use Google Maps to set a fast-charging station as your destination, the car preconditions the battery to improve charging performance once you get there.

When you use Amap Auto to set a fast-charging station as your destination, the car preconditions the battery to improve charging performance once you get there.

When you use Tmap Auto to set a fast-charging station as your destination, the car preconditions the battery to improve charging performance once you get there.

Charging status

The car's charging status is shown using different colours, both in the charging port and in the displays.



1 Charging status information in the driver display

2 Charging status information in the charging port

The charging port light only indicates the current status of the charging cycle. If you would like more comprehensive information, you can find this in the driver display. You can also access the charging view in the centre display for an even more detailed description.

Charging status in the charging port

You can see the car's current charging status in the charging port.

Colour	Colour name Description
	White Charging port location light. The charging cable is attached and unlocked.
	White, pulsating The charging cable is attached and the charging process is either initiating or waiting to start.
	Green, pulsating Charging is in progress.
	Blue Charging is scheduled.
	White, pulsating fast The status is visible while charging is being stopped.
	Green Charging is complete.
	Yellow, pulsating Discharging.
	Red Charging fault. Check the displays for additional information. Always make sure that the charging cable is cor-

DRAFT

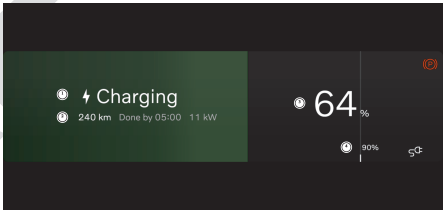
rectly connected to the car's charging port and that the power source, such as the cable or the charging station, works correctly. If an error is indicated, try to disconnect the cable from the car then reconnect it and re-initiate charging to see if the problem is solved. If the problem persists, contact an authorised Volvo workshop.

Red, flashing

The status is visible if you have tried to unlock the charging cable without being authorised. Unlock the car and try again.

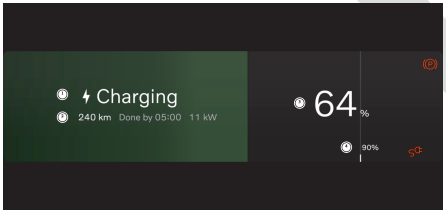
Charging status in the driver display

You can see the car's current charging status in the driver display.



Information available in the driver display.

1 Charging status information
2 Current range and charging power
3 Battery level information
4 Target battery level



Information available in the driver display.

1 Charging status information
2 Current range and charging power
3 Battery level information
4 Target battery level

The driver display contains charging status information such as status text, battery level, current range, charging power, remaining charging time and scheduled time information. Different colours of the progress bar are also visible. The information may vary depending on the charging status.

Status	Colour Colour name Description
Initialising	Silver, pulsating The cable is plugged in and the car is initialising the connection.
Authorising	Silver, pulsating The cable is plugged in and authorising the payment method when Plug & Charge is enabled.

Charging

Green, pulsating

The car is charging manually. If the car is charging while a navigation route is active, the navigation symbol is visible in the display. The symbol indicates the required battery level for the route.

Ready to go

Green, pulsating

The car is charging while a navigation route is active and the status text **Ready to go** is visible when the battery level is sufficient to reach the destination. The car continues to charge until it reaches the battery level target.

Done

Green

Charging is complete.

Charging to minimum level

Green

The car is charging to the minimum level while a schedule is active.

Scheduled

Blue

The car starts charging according to the set schedule. Information about the scheduled time is visible in the display.

Waiting

Silver

The cable is plugged in but the car is not charging. This can occur because the charging point is using its own scheduling or if something overheated.

Charging fault

Red

The cable is plugged in but there is an error in the charging connection. Depending on the error, the display shows different messages. If the problem persists, contact an authorised Volvo workshop.

DRAFT

VOLVO

S 10.04 Method for determining battery state of charge.

Test Group: SVVXV00.0Z0E

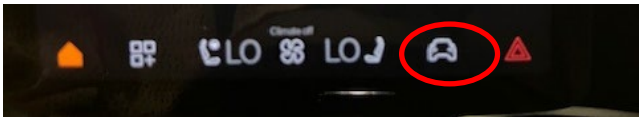
Vehicles: Polestar 3

Battery state of charge in Instrument panel

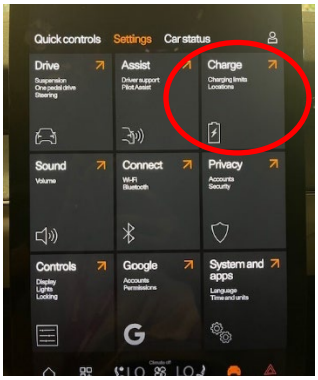
- The battery state of charge is shown in the display behind the steering wheel.

Battery state of charge in Center Display

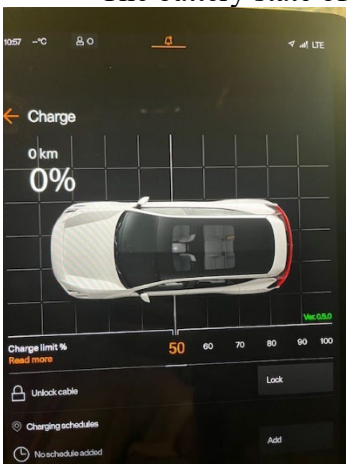
- Press function button at the bottom of the display



- Press function button Charge



- The battery state of charge is shown in the display

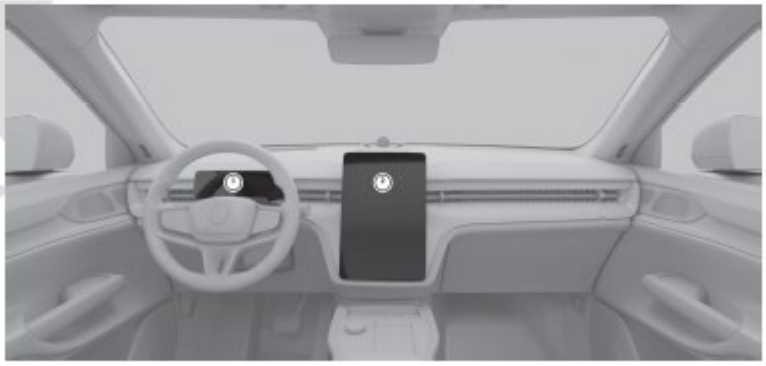


VOLVO

Vehicles: Volvo EX90

Displays

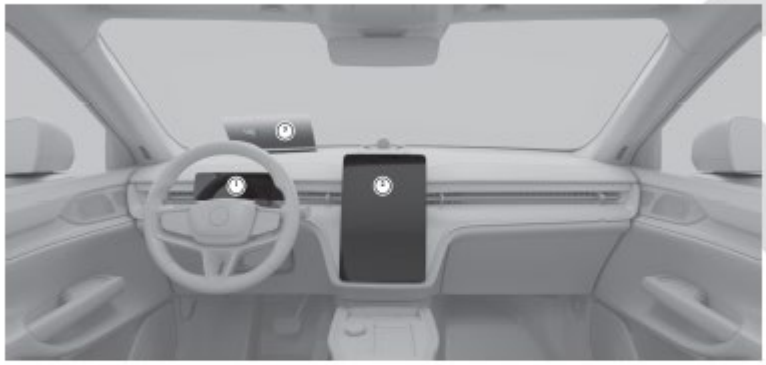
The different displays show you information related to the car and your driving.



Locations of the displays

1 Driver display

2 Centre display



Locations of the displays

1 Driver display

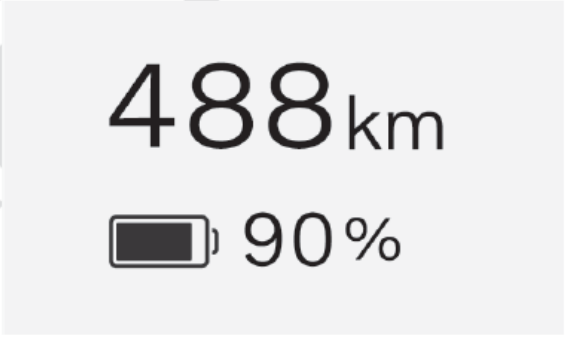
2 Centre display

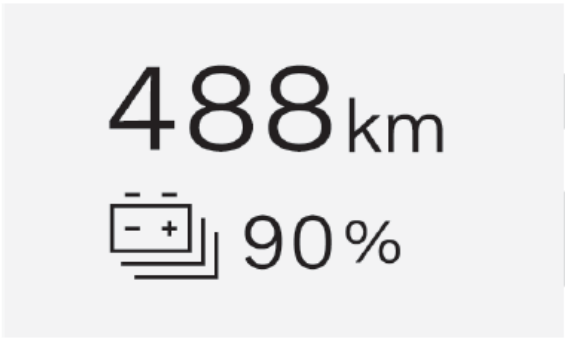
3 Head-up display

VOLVO

Battery meter

The battery meter shows the charge level percentage and estimated range of your car.





The battery meter is shown in the driver display at all times.

Remaining battery

The battery percentage indicates the level of charge left in your car's battery.

The range tells you how far you can drive with the battery's current charge level. You can choose to see a CLTC range based on the car's certified average consumption or a dynamic estimated range based on real-time driving conditions in system settings.

The range tells you how far you can drive with the battery's current charge level. The estimated range is based on your historical driving patterns.

NOTE

Driving style and external factors, such as outside temperatures and driving for prolonged periods at high speeds, can have different effects on the estimated battery range.

Cold battery indicator

When the car has a cold battery, a snowflake ❄ appears next to the battery percentage. This indicates that the battery's charge capacity and range are reduced compared to normal conditions.

When the battery warms up, for example during preconditioning of the car or when driving, the snowflake disappears from the driver display.

Section 12.01 Transmission Description

For description of Vehicle Drive Modes / Transmission modes: See section 12.09

Gearbox	Transmission type	Axle Ratio Front	Axle Ratio Rear	Engine Code	Vehicle Model	Transmission Multimode (yes/no)
N.A.	Fixed single speed	8.77	8.77	EA	Polestar 3 Long Range Dual Motor	No
N.A.	Fixed single speed	8.77	8.77	EE	Polestar 3 Long Range Dual Motor Performance Pack	No
N.A.	Fixed single speed	8.77	8.77	EV	EX90 Twin Motor	No
N.A.	Fixed single speed	8.77	8.77	E2	EX90 Twin Motor Performance	No

Verify Processing Report

Total Datasets Submitted: 1
Accepted Datasets: 1
Rejected Datasets: 0

The original datasets are listed below. In addition, any information generated by the Verify system is also included. For any rejected datasets, the reason(s) the dataset was rejected is provided below in the Transaction Report for that particular dataset.

Test Vehicle Information Submission

Test Vehicle Information Details

Information Process Code : N
EPA Manufacturer Code : VVX
Vehicle Identification Text : 202509
Vehicle Configuration Number : 0

Vehicle Configuration Details

Vehicle Description Details

Manufacturer Vehicle Configuration Number : 0
Test Group Name : SVVXT00.0Z0E
Model Year : 2025
Actual Test Vehicle Make Text : Polestar
Actual Test Vehicle Model Text : Polestar 3 Long Range Dual Motor (21 Inch Wheels)

Drive Source Details

Drive Source Identifier : E
Fuel Identifier : EL

Fuel Cell Indicator : N
Rechargeable Energy Storage System Indicator : Y
Rechargeable Energy Storage Device Identifier : B
Off Board Charge Capability Indicator : Y
Test Drive Code : A
Shift Indicator Light Usage Identifier : 1
Aged Component Usage Identifier : 4

Odometer Correction Details

Correction Initial Value : 0.0
Correction Factor Value : 1.0841
Correction Sign Identifier : +
Correction Units Code : K

Engine Code Text : EA_1
Engine Rated Horsepower Value : 482
Engine Displacement Value : 0.001

Air Aspiration Details

Air Aspiration Method Identifier : NA
Air Aspiration Method Other Text : N/A - BEV

Charge Air Cooler Identifier : N
Emissions Control Device Comments Text : Electric vehicle

Vehicle Specifications Details

Curb Weight Value : 5704
Equivalent Test Weight Value : 6000
Gross Vehicle Weight Rating Value : 6730
NV Ratio Value : 100.2
Axle Ratio Value : 8.77

Transmission Specifications Details

Light Duty Transmission Type Identifier : A
Transmission Lockup Indicator : N
Transmission Creeper Gear Indicator : N
Transmission Gear Count : 1

Target Set Coefficient Details

Test Procedure Dynamometer Coefficients Category : C-H-E
Target CoefficientA Value : 39.96
Target CoefficientB Value : 0.2491
Target CoefficientC Value : 0.02088
Set CoefficientA Value : -18.97
Set CoefficientB Value : 0.2639
Set CoefficientC Value : 0.01866

Target Set Coefficient Details

Test Procedure Dynamometer Coefficients Category : US06
Target CoefficientA Value : 39.96
Target CoefficientB Value : 0.2491
Target CoefficientC Value : 0.02088
Set CoefficientA Value : -18.97
Set CoefficientB Value : 0.2639
Set CoefficientC Value : 0.01866

Target Set Coefficient Details

Test Procedure Dynamometer Coefficients Category : Cold-CO
Target CoefficientA Value : 43.96
Target CoefficientB Value : 0.2740
Target CoefficientC Value : 0.02297
Set CoefficientA Value : 0.00
Set CoefficientB Value : 0.0000
Set CoefficientC Value : 0.00000

Manufacturer Comment Text : Highest selling variant test on Michelin Primacy Tour A/S Front: 265/45R21 / Rear: 295/40R21. TRLHP 13.9, coast down target 26.6. For N/V Ratio an average value is calculated. Average N/V Ratio 100.2 (Front 100.0, Rear 100.3). Test is performed with Polestar Performance Pack Software.

EPA Generated Test Vehicle Details

Original Receipt Date : 20240226
Hybrid Vehicle Indicator : N
Adjusted Loaded Vehicle Weight Value : 6217
Loaded Vehicle Weight Value : 6004
Total Road Load Horsepower Value : 13.9

Transaction Status Details

Transaction Status Identifier : ACCEPTED

Verify Processing Report

Total Datasets Submitted: 1
Accepted Datasets: 1
Rejected Datasets: 0

The original datasets are listed below. In addition, any information generated by the Verify system is also included. For any rejected datasets, the reason(s) the dataset was rejected is provided below in the Transaction Report for that particular dataset.

Test Vehicle Information Submission

Test Vehicle Information Details

Information Process Code : C
EPA Manufacturer Code : VVX
Vehicle Identification Text : 202509
Vehicle Configuration Number : 1

Vehicle Configuration Details

Vehicle Description Details

Manufacturer Vehicle Configuration Number : 1
Test Group Name : SVVXT00.0Z0E
Model Year : 2025
Actual Test Vehicle Make Text : Polestar
Actual Test Vehicle Model Text : Polestar 3 Long Range Dual Motor (20 Inch Wheels)

Drive Source Details

Drive Source Identifier : E
Fuel Identifier : EL

Fuel Cell Indicator : N
Rechargeable Energy Storage System Indicator : Y
Rechargeable Energy Storage Device Identifier : B
Off Board Charge Capability Indicator : Y
Test Drive Code : A
Shift Indicator Light Usage Identifier : 1
Aged Component Usage Identifier : 4

Odometer Correction Details

Correction Initial Value : 0.0
Correction Factor Value : 1.0841
Correction Sign Identifier : +
Correction Units Code : K

Engine Code Text : EA_1
Engine Rated Horsepower Value : 482
Engine Displacement Value : 0.001

Air Aspiration Details

Air Aspiration Method Identifier : NA
Air Aspiration Method Other Text : N/A - BEV

Charge Air Cooler Identifier : N
Emissions Control Device Comments Text : Electric vehicle

Vehicle Specifications Details

Curb Weight Value : 5704
Equivalent Test Weight Value : 6000
Gross Vehicle Weight Rating Value : 6730
NV Ratio Value : 101
Axle Ratio Value : 8.77

Transmission Specifications Details

Light Duty Transmission Type Identifier : A
Transmission Lockup Indicator : N
Transmission Creeper Gear Indicator : N
Transmission Gear Count : 1

Target Set Coefficient Details

Test Procedure Dynamometer Coefficients Category : US06
Target CoefficientA Value : 41.69
Target CoefficientB Value : 0.2491
Target CoefficientC Value : 0.02088
Set CoefficientA Value : -14.97
Set CoefficientB Value : 0.2290
Set CoefficientC Value : 0.01869

Target Set Coefficient Details

Test Procedure Dynamometer Coefficients Category : C-H-E
Target CoefficientA Value : 41.69
Target CoefficientB Value : 0.2491
Target CoefficientC Value : 0.02088
Set CoefficientA Value : -14.97
Set CoefficientB Value : 0.2290
Set CoefficientC Value : 0.01869

Target Set Coefficient Details

Test Procedure Dynamometer Coefficients Category : Cold-CO
Target CoefficientA Value : 45.86
Target CoefficientB Value : 0.2740
Target CoefficientC Value : 0.02297
Set CoefficientA Value : 0.00
Set CoefficientB Value : 0.0000
Set CoefficientC Value : 0.00000

Manufacturer Comment Text : Test on Pirelli Scorpion Zero MS Front: Front: 255/50R20 / Rear: 285/45R20. TRLHP 14.2, coast down target 26.16. Test is performed with Polestar Performance Pack Software.

EPA Generated Test Vehicle Details

Original Receipt Date : 20240226
Hybrid Vehicle Indicator : N

Adjusted Loaded Vehicle Weight Value : 6217
Loaded Vehicle Weight Value : 6004
Total Road Load Horsepower Value : 14.2

Transaction Status Details

Transaction Status Identifier : ACCEPTED

Verify Processing Report

Total Datasets Submitted: 1
Accepted Datasets: 1
Rejected Datasets: 0

The original datasets are listed below. In addition, any information generated by the Verify system is also included. For any rejected datasets, the reason(s) the dataset was rejected is provided below in the Transaction Report for that particular dataset.

Test Vehicle Information Submission

Test Vehicle Information Details

Information Process Code : C
EPA Manufacturer Code : VVX
Vehicle Identification Text : 202509
Vehicle Configuration Number : 2

Vehicle Configuration Details

Vehicle Description Details

Manufacturer Vehicle Configuration Number : 2
Test Group Name : SVVXT00.0Z0E
Model Year : 2025
Actual Test Vehicle Make Text : Polestar
Actual Test Vehicle Model Text : Polestar 3 Long Range Dual M. Perf. SW Perfor mode

Drive Source Details

Drive Source Identifier : E
Fuel Identifier : EL

Fuel Cell Indicator : N
Rechargeable Energy Storage System Indicator : Y
Rechargeable Energy Storage Device Identifier : B
Off Board Charge Capability Indicator : Y
Test Drive Code : A
Shift Indicator Light Usage Identifier : 1
Aged Component Usage Identifier : 4

Odometer Correction Details

Correction Initial Value : 0.0
Correction Factor Value : 1.0841
Correction Sign Identifier : +
Correction Units Code : K

Engine Code Text : EE_1
Engine Rated Horsepower Value : 509
Engine Displacement Value : 0.001

Air Aspiration Details

Air Aspiration Method Identifier : NA
Air Aspiration Method Other Text : N/A - BEV

Charge Air Cooler Identifier : N
Emissions Control Device Comments Text : Electric vehicle

Vehicle Specifications Details

Curb Weight Value : 5704
Equivalent Test Weight Value : 6000
Gross Vehicle Weight Rating Value : 6730
NV Ratio Value : 100.4
Axle Ratio Value : 8.77

Transmission Specifications Details

Light Duty Transmission Type Identifier : A
Transmission Lockup Indicator : N
Transmission Creeper Gear Indicator : N
Transmission Gear Count : 1

Target Set Coefficient Details

Test Procedure Dynamometer Coefficients Category : C-H-E
Target CoefficientA Value : 48.17
Target CoefficientB Value : 0.2491
Target CoefficientC Value : 0.02225
Set CoefficientA Value : -14.97
Set CoefficientB Value : 0.2290
Set CoefficientC Value : 0.01869

Target Set Coefficient Details

Test Procedure Dynamometer Coefficients Category : US06
Target CoefficientA Value : 48.17
Target CoefficientB Value : 0.2491
Target CoefficientC Value : 0.02225
Set CoefficientA Value : -14.97
Set CoefficientB Value : 0.2290
Set CoefficientC Value : 0.01869

Target Set Coefficient Details

Test Procedure Dynamometer Coefficients Category : Cold-CO
Target CoefficientA Value : 52.99
Target CoefficientB Value : 0.2740
Target CoefficientC Value : 0.02448
Set CoefficientA Value : 0.00
Set CoefficientB Value : 0.0000
Set CoefficientC Value : 0.00000

Manufacturer Comment Text : Test on Pirelli Pzero Front: Front: 265/40R22 / Rear: 295/35R22. TRLHP 15.5, coast down target 23.93. For N/V Ratio an average value is calculated. Average N/V Ratio 100.4 (Front 100.0, Rear 100.8). Test is performed with Polestar Performance Pack Software in Performance mode.

EPA Generated Test Vehicle Details

Original Receipt Date : 20240226
Hybrid Vehicle Indicator : N
Adjusted Loaded Vehicle Weight Value : 6217
Loaded Vehicle Weight Value : 6004
Total Road Load Horsepower Value : 15.5

Transaction Status Details

Transaction Status Identifier : ACCEPTED

Verify Processing Report

Total Datasets Submitted: 1
Accepted Datasets: 1
Rejected Datasets: 0

The original datasets are listed below. In addition, any information generated by the Verify system is also included. For any rejected datasets, the reason(s) the dataset was rejected is provided below in the Transaction Report for that particular dataset.

Test Vehicle Information Submission

Test Vehicle Information Details

Information Process Code : N
EPA Manufacturer Code : VVX
Vehicle Identification Text : 202509
Vehicle Configuration Number : 3

Vehicle Configuration Details

Vehicle Description Details

Manufacturer Vehicle Configuration Number : 3
Test Group Name : SVVXT00.0Z0E
Model Year : 2025
Actual Test Vehicle Make Text : Polestar
Actual Test Vehicle Model Text : Polestar 3 Long Range Dual M. Perf. SW Range mode

Drive Source Details

Drive Source Identifier : E
Fuel Identifier : EL

Fuel Cell Indicator : N
Rechargeable Energy Storage System Indicator : Y
Rechargeable Energy Storage Device Identifier : B
Off Board Charge Capability Indicator : Y
Test Drive Code : A
Shift Indicator Light Usage Identifier : 1
Aged Component Usage Identifier : 4

Odometer Correction Details

Correction Initial Value : 0.0
Correction Factor Value : 1.0841
Correction Sign Identifier : +
Correction Units Code : K

Engine Code Text : EE_1
Engine Rated Horsepower Value : 509
Engine Displacement Value : 0.001

Air Aspiration Details

Air Aspiration Method Identifier : NA
Air Aspiration Method Other Text : N/A - BEV

Charge Air Cooler Identifier : N
Emissions Control Device Comments Text : Electric vehicle

Vehicle Specifications Details

Curb Weight Value : 5704
Equivalent Test Weight Value : 6000
Gross Vehicle Weight Rating Value : 6730
NV Ratio Value : 100.4
Axle Ratio Value : 8.77

Transmission Specifications Details

Light Duty Transmission Type Identifier : A
Transmission Lockup Indicator : N
Transmission Creeper Gear Indicator : N
Transmission Gear Count : 1

Target Set Coefficient Details

Test Procedure Dynamometer Coefficients Category : C-H-E
Target CoefficientA Value : 48.17
Target CoefficientB Value : 0.2491
Target CoefficientC Value : 0.02225
Set CoefficientA Value : -14.97
Set CoefficientB Value : 0.2290
Set CoefficientC Value : 0.01869

Target Set Coefficient Details

Test Procedure Dynamometer Coefficients Category : US06
Target CoefficientA Value : 48.17
Target CoefficientB Value : 0.2491
Target CoefficientC Value : 0.02225
Set CoefficientA Value : -14.97
Set CoefficientB Value : 0.2290
Set CoefficientC Value : 0.01869

Target Set Coefficient Details

Test Procedure Dynamometer Coefficients Category : Cold-CO
Target CoefficientA Value : 52.99
Target CoefficientB Value : 0.2740
Target CoefficientC Value : 0.02448
Set CoefficientA Value : 0.00
Set CoefficientB Value : 0.0000
Set CoefficientC Value : 0.00000

Manufacturer Comment Text : Test on Pirelli Pzero Front: Front: 265/40R22 / Rear: 295/35R22. TRLHP 15.5, coast down target 23.93. For N/V Ratio an average value is calculated. Average N/V Ratio 100.4 (Front 100.0, Rear 100.8). Test is performed with Polestar Performance Pack Software in Range mode.

EPA Generated Test Vehicle Details

Original Receipt Date : 20240226
Hybrid Vehicle Indicator : N
Adjusted Loaded Vehicle Weight Value : 6217
Loaded Vehicle Weight Value : 6004
Total Road Load Horsepower Value : 15.5

Transaction Status Details

Transaction Status Identifier : ACCEPTED

Verify Processing Report

Total Datasets Submitted: 1
Accepted Datasets: 1
Rejected Datasets: 0

The original datasets are listed below. In addition, any information generated by the Verify system is also included. For any rejected datasets, the reason(s) the dataset was rejected is provided below in the Transaction Report for that particular dataset.

Test Vehicle Information Submission

Test Vehicle Information Details

Information Process Code : N
EPA Manufacturer Code : VVX
Vehicle Identification Text : 202512
Vehicle Configuration Number : 1

Vehicle Configuration Details

Vehicle Description Details

Manufacturer Vehicle Configuration Number : 1
Test Group Name : SVVXT00.0Z0E
Model Year : 2025
Actual Test Vehicle Make Text : Volvo
Actual Test Vehicle Model Text : EX90 Twin Motor (21 Inch Wheels)

Drive Source Details

Drive Source Identifier : E
Fuel Identifier : EL

Fuel Cell Indicator : N
Rechargeable Energy Storage System Indicator : Y
Rechargeable Energy Storage Device Identifier : B
Off Board Charge Capability Indicator : Y
Test Drive Code : A
Shift Indicator Light Usage Identifier : 1
Aged Component Usage Identifier : 4

Odometer Correction Details

Correction Initial Value : 0.0
Correction Factor Value : 1.0000
Correction Sign Identifier : +
Correction Units Code : K

Engine Code Text : EV_1
Engine Rated Horsepower Value : 402
Engine Displacement Value : 0.001

Air Aspiration Details

Air Aspiration Method Identifier : NA
Air Aspiration Method Other Text : N/A - BEV

Charge Air Cooler Identifier : N

Emissions Control Device Comments Text : Electric vehicle

Vehicle Specifications Details

Curb Weight Value : 6074
Equivalent Test Weight Value : 6500
Gross Vehicle Weight Rating Value : 7470
NV Ratio Value : 101.0
Axle Ratio Value : 8.77

Transmission Specifications Details

Light Duty Transmission Type Identifier : A
Transmission Lockup Indicator : N
Transmission Creeper Gear Indicator : N
Transmission Gear Count : 1

Target Set Coefficient Details

Test Procedure Dynamometer Coefficients Category : Cold-CO
Target CoefficientA Value : 45.55
Target CoefficientB Value : 0.2495
Target CoefficientC Value : 0.02314
Set CoefficientA Value : 0.00
Set CoefficientB Value : 0.0000
Set CoefficientC Value : 0.00000

Target Set Coefficient Details

Test Procedure Dynamometer Coefficients Category : C-H-E
Target CoefficientA Value : 41.41
Target CoefficientB Value : 0.2268
Target CoefficientC Value : 0.02104
Set CoefficientA Value : -4.00
Set CoefficientB Value : 0.1200
Set CoefficientC Value : 0.02010

Target Set Coefficient Details

Test Procedure Dynamometer Coefficients Category : US06
Target CoefficientA Value : 41.41
Target CoefficientB Value : 0.2268
Target CoefficientC Value : 0.02104
Set CoefficientA Value : -4.00
Set CoefficientB Value : 0.1200
Set CoefficientC Value : 0.02010

Manufacturer Comment Text : Test performed with highest selling Tire for FE label. Test is performed with performance software (496hp) to cover for Performance variants.

EPA Generated Test Vehicle Details

Original Receipt Date : 20240604
Hybrid Vehicle Indicator : N
Adjusted Loaded Vehicle Weight Value : 6772

Loaded Vehicle Weight Value : 6374
Total Road Load Horsepower Value : 14.0

Transaction Status Details

Transaction Status Identifier : ACCEPTED

Verify Processing Report

Total Datasets Submitted: 1
Accepted Datasets: 1
Rejected Datasets: 0

The original datasets are listed below. In addition, any information generated by the Verify system is also included. For any rejected datasets, the reason(s) the dataset was rejected is provided below in the Transaction Report for that particular dataset.

Test Vehicle Information Submission

Test Vehicle Information Details

Information Process Code : C
EPA Manufacturer Code : VVX
Vehicle Identification Text : 202512
Vehicle Configuration Number : 0

Vehicle Configuration Details

Vehicle Description Details

Manufacturer Vehicle Configuration Number : 0
Test Group Name : SVVXT00.0Z0E
Model Year : 2025
Actual Test Vehicle Make Text : Volvo
Actual Test Vehicle Model Text : EX90 Twin Motor Performance

Drive Source Details

Drive Source Identifier : E
Fuel Identifier : EL

Fuel Cell Indicator : N
Rechargeable Energy Storage System Indicator : Y
Rechargeable Energy Storage Device Identifier : B
Off Board Charge Capability Indicator : Y
Test Drive Code : A
Shift Indicator Light Usage Identifier : 1
Aged Component Usage Identifier : 4

Odometer Correction Details

Correction Initial Value : 0.0
Correction Factor Value : 1.0000
Correction Sign Identifier : +
Correction Units Code : K

Engine Code Text : E2_1
Engine Rated Horsepower Value : 510
Engine Displacement Value : 0.001

Air Aspiration Details

Air Aspiration Method Identifier : NA
Air Aspiration Method Other Text : N/A - BEV

Charge Air Cooler Identifier : N

Emissions Control Device Comments Text : Electric vehicle

Vehicle Specifications Details

Curb Weight Value : 6085
Equivalent Test Weight Value : 6500
Gross Vehicle Weight Rating Value : 7470
NV Ratio Value : 101.0
Axle Ratio Value : 8.77

Transmission Specifications Details

Light Duty Transmission Type Identifier : A
Transmission Lockup Indicator : N
Transmission Creeper Gear Indicator : N
Transmission Gear Count : 1

Target Set Coefficient Details

Test Procedure Dynamometer Coefficients Category : C-H-E
Target CoefficientA Value : 46.13
Target CoefficientB Value : 0.2268
Target CoefficientC Value : 0.02104
Set CoefficientA Value : 1.00
Set CoefficientB Value : 0.1420
Set CoefficientC Value : 0.01990

Target Set Coefficient Details

Test Procedure Dynamometer Coefficients Category : Cold-CO
Target CoefficientA Value : 50.74
Target CoefficientB Value : 0.2495
Target CoefficientC Value : 0.02314
Set CoefficientA Value : 0.00
Set CoefficientB Value : 0.0000
Set CoefficientC Value : 0.00000

Target Set Coefficient Details

Test Procedure Dynamometer Coefficients Category : US06
Target CoefficientA Value : 46.13
Target CoefficientB Value : 0.2268
Target CoefficientC Value : 0.02104
Set CoefficientA Value : 1.00
Set CoefficientB Value : 0.1420
Set CoefficientC Value : 0.01990

Manufacturer Comment Text : Test performed for CARB ZEV EDV as worst case. Tested in Performance mode

EPA Generated Test Vehicle Details

Original Receipt Date : 20240611
Hybrid Vehicle Indicator : N
Adjusted Loaded Vehicle Weight Value : 6777

Loaded Vehicle Weight Value : 6385
Total Road Load Horsepower Value : 14.7

Transaction Status Details

Transaction Status Identifier : ACCEPTED

Section 12.02.04
TEST VEHICLE DESCRIPTION .

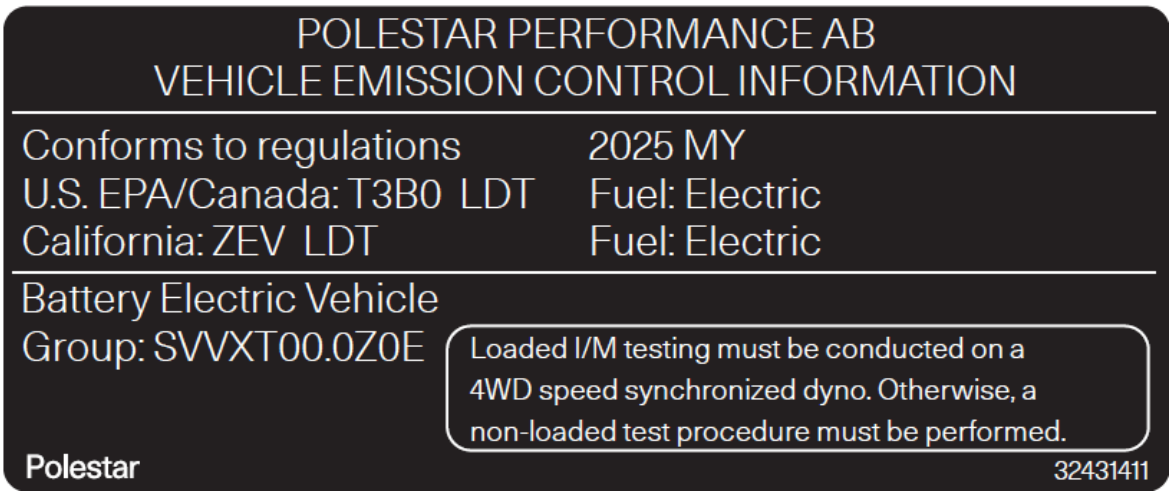
Please refer to VERIFY Vehicle Information in Section 12.02.03 &
VERIFY Certification Summary Information Report in Section 07.01

Test vehicles generating data for Test Group SVVXT00.0Z0E 2025MY								
				Certification purposes				
Vehicle ID	Model Type	Engine code	Transmission	Data	Emission	Aging Method	Test Group	Original MY
202509	Polestar 3 Long Range Dual Motor	EA/EE	E-AWD	FEDV	RANGE	2K SRC	SVVXT00.0Z0E	2025
202512	EX90 Twin Motor	EV/E2	E-AWD	FEDV	RANGE	2K SRC	SVVXT00.0Z0E	2025

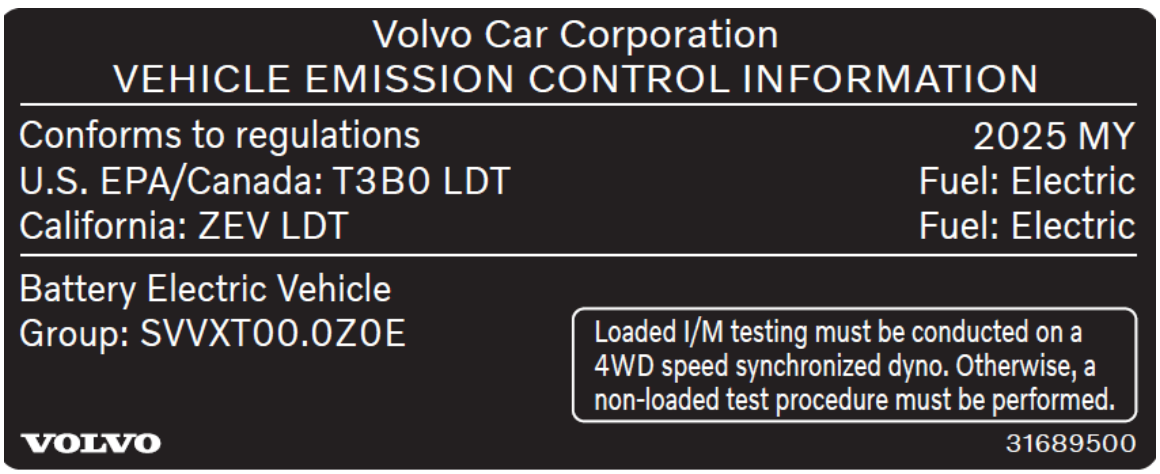
Section 12.03
LABEL FORMAT
Section 12.03.01
VEHICLE EMISSION CONTROL INFORMATION LABEL

LABEL INFO: Label size: 103 x 41 mm
Label location: Engine compartment, on the hood

Test Group: SVVXT00.0Z0E
Engine Code: EE_1, EA_1PA_1
Vehicles: Polestar 3 Long Range Dual motor performance pack, Polestar 3 Long Range Dual motor



Test Group: SVVXT00.0Z0E
Engine Code: E2_1, EV_1PB_1
Vehicles: EX90 Twin motor performance, EX90 Twin motor



S 12.04.04 Active Aerodynamic Devices in Certification Road Loads DATA

Not applicable for ICE (Internal Combustion Engine) Test Groups: SVVXJ02.0P30, SVVXT02.0S31, SVVXJ02.0U70 & SVVXJ02.0S30

Test Group	Vehicle Variant	Active System1	Active System2	Cycle Energy difference UDDS	Cycle Energy difference HWY
SVVXT00.0Z0E	Polestar 3 Long Range Dual Motor Performance Pack	Shutters	Ride Height	-1.5%	-0.4%
	EX90 Twin Motor Performance	Shutters		-1.6%	-0.4%
	Polestar 3 Long Range Dual Motor	Shutters	Ride Height	-1.5%	-0.4%
	EX90 Twin Motor	Shutters		-1.6%	-0.4%

S12.05 List of Certified vehicles	
Test Group:	**SVVXT00.0Z0E**
Evap Families:	**N/A**
Emission Fuel:	**N/A**
Fuel Economy Fuel:	**N/A**

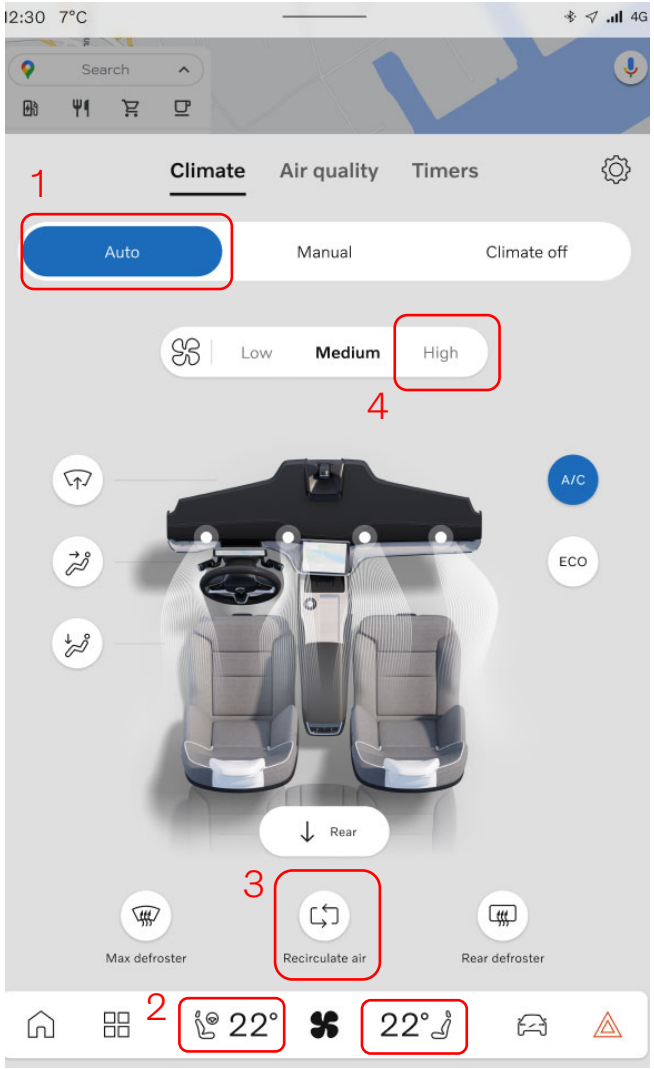
Carline	Model Type	Vehicle Model	Vehicle Class	Sales Area	Engine Name	Engine Displ [liter]	Engine Code	Fuel tank volume [liter]	Evap Code	Emission Control System	Transm Type	Transm Class	ETW
Polestar 3	Polestar 3 Long Range Dual Motor Performance Pack	Wagon	Standard SUV 4WD	50 S	E400V7	N/A	EE_1	N/A	N/A	N/A	N/A	N/A	6000
Polestar 3	Polestar 3 Long Range Dual Motor	Wagon	Standard SUV 4WD	50 S	E400V30	N/A	EA_1	N/A	N/A	N/A	N/A	N/A	6000
EX90	EX90 Twin Motor Performance	Wagon	Standard SUV 4WD	50 S	E400V13	N/A	E2_1	N/A	N/A	N/A	N/A	N/A	6500
EX90	EX90 Twin Motor	Wagon	Standard SUV 4WD	50 S	E400V3	N/A	EV_1	N/A	N/A	N/A	N/A	N/A	6500

VOLVO

EX90 & Polestar 3: AC setting for SC03 Test

To get the desired settings:

1. Activate AUTO climate (Which activates auto AC)
2. Select 72 °F/22 °C
3. Select Recirculation
4. Select Max fan



During test:

Maximum AC* will run for as long as necessary, when the cabin has started to cool down the AC Compressor and fan level will start to ramp down

There is no button to activate Max AC as this function is not available for this platform

** AC will run at maximum allowed limit based on speed. This is a balancing need due to NVH limitations*

Dec 29, 2023

Mr. Byron Bunker, Director
Compliance Division
OTAQ
U.S. Environmental Protection Agency
2000 Traverwood Drive
Ann Arbor, Michigan 48105

Ms. Robin U. Lang, Division Chief
Emissions Certification and Compliance Division
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Dear Mr. Bunker and Ms. Lang:

Volvo Car USA, LLC (Volvo) herewith submits an Application for Certification for 2025MY all- electric powered light-duty vehicles (LDV's) contained in Volvo's 50-State test group SVVXT00.0Z0E. This test group has a target sales start date of May, 2024.
This test group complies with all applicable California and Federal regulations.
The emission standards applicable to this test group are as follows:

Federal Certification Exhaust Emission Standards
Tier 3 Bin 0 Standards 150K

Federal In-Use Exhaust Emission Standards
Tier 3 Bin 0 Standards 150K

California Certification Exhaust Emission Standards
LEV III ZEV Standards 150K

California In-Use Exhaust Emission Standards
LEV III ZEV Standards 150K

Federal Certification Evaporative Standards
Not Applicable (Electric Vehicle)

Federal In-Use Evaporative Standards
Not Applicable (Electric Vehicle)

California Certification Evaporative Standards
Not Applicable (Electric Vehicle)

California In-Use Evaporative Standards
Not Applicable (Electric Vehicle)

As provided in 40 CFR 86.1848-10 (d), Volvo has elected to submit an Application for each test group. This Part I Application has been prepared in accordance with the standardized format recommended by EPA via its Mail Out # CD-14-19, subject: "Certification Application Reporting Guidance" dated November 24, 2014.

All other sections of the Application (e.g., The Common Section) not contained herein are hereby included in this Application by reference.

Therefore, in accordance with the provisions of 40 CFR 86.1844-01, Volvo requests that a U.S. EPA Certificate of Conformity and CARB executive order to be issued for the LDV's listed in this Application for Certification.

Please do not hesitate to contact me if you have any questions regarding this submission.

Sincerely,

VOLVO CARS USA, LLC
Certification, Regulatory & Compliance

Bruno DiGennaro
Senior Manager, Certification & Conformity

US EPA Fee Form

Help and EPA Instructions

* Required Field

General Information

Date: 01/02/2024

Process Code *

Submit New Fee Filing Form

Manufacturer Code *

VVX

Manufacturer Name *

Volvo Car USA, LLC

Contact Name *

Bryant Lowry

Contact Email Address *

BRYANT.LOWRY@VOLVOCARS.COM

Contact Phone *

18432763791

Calendar Year complete application submitted to EPA *

2024

PLEASE NOTE: These fees apply to complete certification applications received by EPA from January 1, 2024, through December 31, 2024. 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 *

SVVXT00.0Z0E

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? *

No

Payment Information

Amount Owed

$34,461.00

Payment Type *

Offline Wire

Comments

Certification of 2025MY Polestar3 and Volvo EX90

EPA Form Number 3520-29
OMB Control No. 2060-0545
Approval expires 12/31/2022

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.

The content of this document may contain Sensitive But Unclassified (SBU) data and/or Controlled Unclassified Information (CUI).

From: fees@epa.gov
To: Lowry, Bryant
Subject: Confirmation of Certification Fees Payment
Date: Monday, January 29, 2024 9:28:46 AM

[You don't often get email from fees@epa.gov. Learn why this is important at https://aka.ms/LearnAboutSenderIdentification]

To the representative for Volvo Car USA, LLC:

Your certification Fee Filing Form(s) submitted for the following family or test group(s) and the associated financial documentation for your payment of $34461.00 were received on 01/29/2024.

- SVVXT00.0Z0E

This message indicates only that EPA has received record of your payment and form(s) for the above certification fee. It does not constitute the granting of a Certificate of Conformity by EPA or convey any information about the status of your certification application for the subject family or test group(s).

Please do not respond to this email. If you have any questions regarding certification of the family or test group(s), please contact your EPA Certification Representative; for questions on fees, contact Fees@epa.gov.

S15.03 SVVXT00.0Z0E CARB Compliance Invoice Adjustment Form

STATE OF CALIFORNIA
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
CALIFORNIA AIR RESOURCES BOARD

MOBILE SOURCE CERTIFICATION AND COMPLIANCE FEE PAYMENT FORM FOR ON-ROAD APPLICATIONS ONLY

CARB USE ONLY

Invoice Name	MSF230659
Invoice Date	Jan 02, 2024

COMPANY INFORMATION

Company Name	Volvo Car USA LLC
Address	270 THREE POINT DRIVE
City	RIDGEVILLE
State	SC
Zip	29472
Country	United States
Contact Name	Bryant Lowry
Contact Telephone Number	18432763791
Contact Email	bryant.lowry@volvocars.com
CARB Customer Number	CCAM000086

APPLICATION INFORMATION

Payment Row Number	Product Description or File Name	Model Year/Calendar Year	Unique Application Identifier: Test Group, Engine Family, Trailer Family, Vehicle Family, ZEP Family, if applicable (ID listed in payment row must match the unique identifier given to the certification application)	Category Type	Fee Type	Amount
1	PS3 EX90	Model Year 2025	SVVXT00.0Z0E	Light-duty vehicle test group and medium-duty vehicle test group	Zero-Emission	$ 11,627.00

Total Due	$ 11,627.00

I, Bryant Lowry _, attest that any information provided is true, accurate, and complete.

(Responsible Party Signature Here)

From: noreply@salesforce.com on behalf of California Air
To: Lowry, Bryant
Subject: MS Fee Payment Confirmation for Invoice MSF230659
Date: Friday, January 12, 2024 10:36:30 AM
Attachments: MSF230659 - signed.pdf

You don't often get email from mscertfees@arb.ca.gov. Learn why this is important

Dear Bryant Lowry

Attached is documentation for your MS Fee payment for Invoice Name MSF230659. Please include a copy of this invoice and email with each application that is listed when submitting your application to the applicable MS Fee program.

1. Payment ID – 23RA0245
2. Date of Payment – 1/9/2024
3. Payment Status - Paid

Section 16
CONFIDENTIAL INFORMATION

Section 16.01
STATEMENT OF CONFIDENTIALITY

According to Class determination 3-78, the following sections in the below listed Applications are determined by Volvo to be kept as confidential.

Test Group Applications:

Sections:	
02	Durability Group Description
04.05	Battery Aging Procedure Description
04.06	Battery Aging Simulation Data
09.01	OBD System Description
09.02	OBD Approval Letters
10.03	Vehicle Safe Operation
11	AECD Descriptions
12.04	Vehicle Test Parameters
12.09	Drive Modes Description
12.11	Description of DCF (Disc Cleaning Function)
17.06	California High Priced Parts List (Not Confidential for Final Application)
17.09	Warranty Booklet Reference (Not Confidential for Final Application)

Common Application:

Part 1 Sections:

04.01	Evap Bench Aging procedure description & Approval
04.03	Exhaust Emissions Durability Test Procedures
11	AECD Descriptions
12.02.02	FE Label Testing Selection
12.04	Vehicle Test Parameters
12.04.01	List of Test Vehicle Parameters (Not Confidential for Final Application)
12.07	California EVAP Supplemental Information
12.10	Stop-Start Disable Criteria
12.13	AC System Description
13	US Projected Sales / Phase in / Fleet average
17.03	Compliance Plan / Phase in / Fleet average
17.10	California PZEV Anti Backsliding Requirement
18.01	Canada Projected Sales
18.02	Canada Compliance & Sales Information
18.03	Canada FE Label Testing Selection
18.04	Canada Compliance Plan / Phase in / Fleet average

Part 2 Sections:

02	Calibration Information
04	Actual Sales
07	Actual Sales (Canada)

VOLVO

S 17.07 California Compliance Statements & summary information including ZEV classification.

Test Group: SVVXT00.0Z0E

Certification Standard and Summary Matrix:

Engine Code Type:	50S
Exhaust Standard:	ZEV
Exhaust Useful Life:	N.A.
EVAP Useful Life:	N.A.
Fuel Type:	Electricity
Exhaust Emission Test Fuel:	N.A.
EVAP Test Procedure:	N.A.
EVAP Emission Standard:	N.A.

FTP/SFTP/EVAP Emission Standard / Emission Control Device Statement:
Not applicable, Only All Electric Vehicle in this Test Group, no Exhaust emissions.

Environmental Performance Label Information:
Volvo applies new EPA label in lieu of the CA EP label.

Defeat Devices - All Test Groups
Volvo states that all our 2025 MY test groups that we are applying for certification herein, include no defeat devices.
This Test Group contains All Electric Vehicles only, so Defeat Device is Not Applicable.

Test Procedure used
For UDDS and Highway Range Volvo use SAE J1634 (Version 2017)
As approved by CARB of 06.27.2023

Vehicle and Battery Break-in period and method
Volvo break-in vehicles and Battery to 2000 miles with SRC as described in
40 CFR 86.1831-01

Alternating Current (AC) Charger Inlet
All AC charger inlet and charging system in this test group fulfill the requirements of 13 ccr 1962.3 and meets the specifications applicable to AC Level 1 and Level 2 charging contained in SAE Surface Vehicle Recommended Practice SAE J1772 REV OCT 2017, SAE Electric Vehicle and Plug in Hybrid Electric Vehicle Conductive Charger Coupler. All on-board chargers have a minimum output of 3.3 kilowatts.

VOLVO

California Supplementary Questions:

1. Do the test and production vehicles have a defeat device?

- No, Volvo Cars never has and never will fit any device to its vehicles that manipulates emission performance during emission tests.
- Please see reference in section 08.01 “Statement of Compliance”.
  “Volvo Car Corporation certifies that all 2025MY Test Groups are free of defeat devices and strategies”

2. Have all AECDs been declared and described in the application?

- AECD not applicable for ZEV/BEV’s.

3. Do the test and production vehicles have alternate maps?

- Yes, there are alternative maps. Please see Section 11.05 “California Alternative Maps Calibration Description”. (But Not Applicable for ZEV/BEV’s)

4. Is the transmission part of any AECD, for example, by receiving outputs from the ECU or providing inputs to the ECU, in any emission control strategy, for example, engine and/or catalyst warm-up

- For the transmission, and as stated and described under sections 11, 12.01 and 12.09 of our application for certification, Transmission Description and Drive mode Description describes the default mode of operation. No other AECD operations are stated and/or used.

5. Does the transmission behave and perform the same as, or differently than, while on road versus on a dynamometer? Please explain any differences

- The transmission behaves the same on-road and on the dynamometer.

VOLVO

Classification of ZEVs.

Vehicles in this Test Group qualify for ZEV Allowance:
Polestar 3 Long range Dual Motor Performance Pack
Polestar 3 Long range Dual Motor (20 Inch Wheels)
Polestar 3 Long range Dual Motor (21 Inch Wheels)
Polestar 3 Long range Dual Motor (22 Inch Wheels)

Polestar 3 Long Range Dual Motor Performance Pack tested in Performance mode
Will cover all other variants as worst case for ZEV Allowance:

(0.01*UDDS AER Range) + 0.50
ZEV Allowance is capped at 4.00

UDDS AER:

Polestar 3 Long range Dual Motor Performance Pack	411.58 miles
Polestar 3 Long range Dual Motor (20 Inch Wheels)	411.58 miles
Polestar 3 Long range Dual Motor (21 Inch Wheels)	411.58 miles
Polestar 3 Long range Dual Motor (22 Inch Wheels)	411.58 miles

ZEV Allowance:

Polestar 3 Long range Dual Motor Performance Pack	4.00 (4,62 without cap)
Polestar 3 Long range Dual Motor (20 Inch Wheels)	4.00 (4,62 without cap)
Polestar 3 Long range Dual Motor (21 Inch Wheels)	4.00 (4,62 without cap)
Polestar 3 Long range Dual Motor (22 Inch Wheels)	4.00 (4,62 without cap)

Certification review sheet

Model Year	Test Group	Vehicle Type	ZEV Type	ZEV Fuel Type
2025	SVVXT00.0Z0E	LDT	ZEV	LI+

Make	Model	Vehicle Type	ZEV Type	ZEV Fuel Type	UDDS AER (miles)	ZEV Credit
Polestar	Polestar 3 Long range Dual motor Performance pack	LDT	ZEV	LI+	411.58	4.00
Polestar	Polestar 3 Long Range Dual Motor (20 Inch Wheels)	LDT	ZEV	LI+	411.58	4.00
Polestar	Polestar 3 Long Range Dual Motor (21 Inch Wheels)	LDT	ZEV	LI+	411.58	4.00
Volvo	EX90 Twin Motor (21 inch Wheels)	LDT	ZEV	LI+	433.61	4.00
Volvo	EX90 Twin Motor (20 and 22 inch Wheels)	LDT	ZEV	LI+	433.61	4.00
Volvo	EX90 Twin Motor Performance (21 inch Wheels)	LDT	ZEV	LI+	433.61	4.00
Volvo	EX90 Twin Motor Performance (20 and 22 inch Wheels)	LDT	ZEV	LI+	433.61	4.00