

Certification Summary Information Report

Manufacturer	Volvo Car USA, LLC	Manufacturer Code	VVX
Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50
Certificate Number	VVVXT02.0S30-001	CARB Executive Order #	--
Certificate Issue Date	05/15/2026	Certificate Revision Date	--
Certificate Effective Date	05/15/2026	Conditional Certificate	No
CSI Revision #	--	CSI Submission/Revision Date	04/28/2026 08:31:38 AM
Model Year	2027		

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50
Test Group Information			
CSI Type	Update for Correction	Running Change Reference Number	--
GHG Exempt Status	Not Exempt		
Drive Sources and Fuel(s)			
Drive Source #1:	Combustion Engine		
	Fuel	Basic Fuel Metering System	Lean Burn Strategy Indicator
	Gasoline	Spark Ignition Direct fuel injection	No
Drive Source #2:	Electric Motor		
	Fuel	Basic Fuel Metering System	Lean Burn Strategy Indicator
	Electricity	--	No
Hybrid Indicator	Yes		
Multiple Fuel Storage	--	Rechargeable Energy Storage System Indicator	Yes
Multiple Fuel Combustion	--	Off-board Charge Capable Indicator	No
Fuel Cell Indicator	No	EPA Vehicle Class	LDT3
Federal Clean Fuel Vehicle	No	Federal Clean Fuel Vehicle Standard	--
Federal Clean Fuel Vehicle ILEV	No	California Partial Zero Emissions Vehicle Indicator	No
Durability Group Name	VVVXGPGNNN05	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	05/08/2026	CAP2000 Conditional Certificate?	No
Independent Commercial Importer?	No	Alternative Fuel Converter Certificate?	No
SFTP Federal Composite Compliance Identifier	Tier 3	SFTP Tier 2 Composite CO Option	No
SFTP LEV-III Composite Compliance Indicator	No		
OBD Compliance Type	CARB	OBD Demonstration Vehicle Test Group	VVVXT02.0P34
Test Group OBD Compliance Level	Partial - with deficiencies and penalty	Number of Test Group OBD Deficiencies	6
OBD Deficiencies Comments	OBD approval number E-26-056		
Mfr Test Group Comments	2.0 L direct injection engine with Carry-Over durability, EDV and Carry-over evaporative testing. . All HCHO satisfied with a compliance statement.		
Mfr Exhaust / Evap Standards Comments	--		

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50				
Evaporative/Refueling Family Information							
Evaporative Summary Information Type	New	Submission/Correction Date	03/16/2026 09:03:10 AM				
Integrated ORVR?	Yes	Fuel(s)	Gasoline				
Multiple Fuel Storage	--						
Bladder Fuel Tank?	No						
Fuel Tank Material	Plastic	Fuel Tank Material Description	Coextruded 6 layer				
Fill Pipe Seal Type	Liquid seal						
Air Intake System Vapor Storage Device?	No	Air Intake System Vapor Storage Device Description	--				
Fuel System Vapor Storage Canister?	Yes	Other Vapor Storage	--				
Fuel System Vapor Storage Canister(s) Total Working Capacity (grams)	142	Number of Primary Canisters	1				
Number of Bleed Canisters	0	Bleed Canister Total Working Capacity (grams)	0				
Mfr Evaporative/Refueling Family Comments	Carryover durability and emission data. Tier 3 ORVR and LEV III. XC90 B6 only. LDT3. Bleed device integrated in canister.						
Leak Family Details							
Leak Family Indicator	Yes						
Canister Bleed Test Indicator	Yes	Applicability of Evaporative Canister Bleed Test	50 State				
Evaporative Canister Bleed Test Comments	Bleed emission std of 0.020						
CARB Fuel Only (Rig) Test Indicator	No	Applicability of CARB Fuel Only (Rig) Test	--				
CARB Fuel Only (Rig) Test Comments	--						
Leak Family Name	Applicability of Leak Family Requirements	Leak Family Standard (inches)	Leak Family Description				
VVVXR0142E50-001	50 State	0.02	--				
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	243 - XC90 B6 AWD	Federal	All Wheel Drive	Semi-Automatic	8	Yes
Volvo Car USA, LLC	1 - Volvo Cars of North America, LLC	243 - XC90 B6 AWD	California + CAA Section 177 states	All Wheel Drive	Semi-Automatic	8	Yes
Engine Description							
Hybrid Type	IC Engine/Electric Motor	Hybrid Description	--				
Engine Type	4-Stroke Spark Ignition	Mfr Engine Description	gasoline direct injection				
Engine Block Arrangement	Inline	Mfr Engine Block Arrangement Description	--				
Camless Valvetrain Indicator	No	Oil Viscosity/Classification	0W-20 / C6 (API SP)				
Number of Cylinders/Rotors	4	Mechanically Variable Compression Ratio Indicator	N				

Certification Summary Information Report

Test Group		VVVXT02.0S30			Evaporative/Refueling Family			VVVXR0142E50								
After Treatment Device(s) (ATD)																
ATD Number		ATD Type		ATD Precious Metal		Substrate Material		Substrate Construction								
1		Three-way catalyst		Palladium + Rhodium		Ceramic		Monolith								
2		Three-way catalyst		Palladium + Rhodium		Ceramic		Monolith								
Mfr After Treatment Device (ATD) Comments		There are 2 catalyst units but only 1 TWC part number. 3 oxygen sensors monitor unit.														
Direct Ozone Reduction (DOR) Device		Not Equipped														
Mfr Emission Control Device Comments		--														
Engine Configuration Number 1																
Engine Displacement (liters)		2.0			Engine Rated Horsepower			295								
Number of Inlet Valves Per Cylinder		2			Number of Exhaust Valves Per Cylinder			2								
Air Aspiration Method		Turbocharged+Supercharged			Number of Air Aspiration Devices			2								
Air Aspiration Device Configuration		Series			Charge Air Cooler Type			Liquid								
Air Aspiration Drive Method(s)		Mechanical, Electric														
Cylinder Deactivation		No														
Cylinder Deactivation Description		--														
Variable Valve Timing		Yes														
Variable Valve Timing System Description		Timing on both intake and exhaust side.														
Variable Valve Lift?		No														
Variable Valve Lift System Description		--														
Number of Knock Sensors		1			Number of Air/Fuel Sensors			3								
Air/Fuel Sensor # 1 Type		Heated oxygen			Air/Fuel Sensor # 1 Description			--								
Air/Fuel Sensor # 2 Type		Heated oxygen			Air/Fuel Sensor # 2 Description			--								
Air/Fuel Sensor # 3 Type		Heated air fuel			Air/Fuel Sensor # 3 Description			--								
Mfr Air/Fuel Sensor Comments		--														
Exhaust Gas Recirculation		Yes			Cooled Exhaust Gas Recirculation			Yes								
EGR Type		Electronic/Electric			Exhaust Gas Recirculation Description if 'Other'			--								
Closed Loop Air Injection System		No														
Air Injection Type		Not Applicable			Air Injection Type if 'Other'			--								
Mfr Engine Configuration Comments		Mechanical Turbo and Electric supercharger														
Official Test Numbers																
Test Group		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
Gasoline		PVVX10074003		PVVX10074005		PVVX10074006		PVVX10074007		PVVX10074004		25.8	228.2	18.2	286.1	--
Electricity		--		--		--		--		--		--	--	--	--	--

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50
SFTP LEV-III Official Test Numbers			
Test Group Fuel	FTP	US06	SC03
Gasoline	PVVX10074003	PVVX10074005	PVVX10074006
Official Charge Depleting Test Numbers			
Test Group Fuel	UDDS	Highway	
Electricity	--	--	
Hybrid Electric Vehicle And Fuel Cell Information			
Rechargeable Energy Storage System	Battery(s)	Rechargeable Energy Storage System, if Other	--
Battery Type	Lithium Ion	Number of Battery Packs	1
Total Voltage of Battery Packs	44	Battery Energy Capacity	8.4
Battery Specific Energy	56	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)	1		
Motor/Generator Type 1	DC Permanent Magnet, brushless	Rated Motor/Generator Power	10
Mfr Fuel Cell Description	--		
Fuel Cell On-Board H2 Storage Capacity (kg)	--	Usable H2 Fill Capacity (kg)	--
Mfr Hybrid Electric/ Electric Vehicle Comments	--		

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50									
Emission Data Vehicle Information												
Vehicle ID / Configuration	202216 / 0	Manufacturer Vehicle Configuration Number	0									
Original Test Group Name	NVVXJ02.0U73	Original Evaporative/Refueling Family	NVVXR0142E54									
Original Test Vehicle Model Year	2022											
Vehicle Model												
Represented Test Vehicle Make	Volvo	Represented Test Vehicle Model	XC60 B5 AWD									
Leak Family Details												
Leak Family Identifier	001	Leak Family Name	NVVXR0142E54-001									
Drive Sources and Fuel System Details												
<table border="1"> <thead> <tr> <th>Drive Source and Fuel#</th> <th>Drive Source</th> <th>Fuel</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Electric Motor</td> <td>Electricity</td> </tr> <tr> <td>2</td> <td>Combustion Engine</td> <td>Gasoline</td> </tr> </tbody> </table>				Drive Source and Fuel#	Drive Source	Fuel	1	Electric Motor	Electricity	2	Combustion Engine	Gasoline
Drive Source and Fuel#	Drive Source	Fuel										
1	Electric Motor	Electricity										
2	Combustion Engine	Gasoline										
Hybrid Indicator	Yes											
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	No											
Odometer Correction -- Initial	0	Odometer Correction Factor	0.994									
Odometer Correction Sign	- = System Miles is equal to (Test odometer reading - Initial system miles) * Correction factor											
Odometer Correction Units	Miles											
Engine Code	L1_2	Rated Horsepower	247									
Displacement (liters)	1.969											
Air Aspiration Method	Turbocharged	Air Aspiration Method, if 'Other'										
Number of Air Aspiration Devices	1	Air Aspiration Device Configuration	Single									
Charge Air Cooler Type	Air	Drive Mode While Testing	2-Wheel Drive, Front									
Shift Indicator Light Usage	Not equipped	Aged Emission Components	4,000 (mi)									
Curb Weight (lbs)	4204	Equivalent Test Weight (pounds)	4500									
GVWR (lbs)	5400	N/V Ratio	26									
Axle Ratio	3.33											
Transmission Type	Semi-Automatic	# of Transmission Gears	8									
Transmission Lockup	Yes	Creeper Gear	No									

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50
-------------------	--------------	-------------------------------------	--------------

Dynamometer Coefficients:

Coefficient Category	Target Coefficients			Set Coefficients			EPA Calculated Total Road Load Horse Power for City/Highway/Evap Coefficients
	A (lbf)	B (lbf/mph)	C (lbf/mph**2)	A (lbf)	B (lbf/mph)	C (lbf/mph**2)	
City/Highway/Evap	45.72	0.1502	0.02442	24.842	0.08098	0.024629	15.2
Cold CO	50.8	0.16689	0.027133	29.403	0.1103	0.026769	N/A
US06	45.72	0.1502	0.02442	24.842	0.08098	0.024629	N/A

Emission Control Device Comments --

Manufacturer Test Vehicle Comments EDV Worst Case Dyno Setting. TRLHP 15.2, coast down target 18,53, XC60 B5 AWD.

Test #	NVVX10069709	Test Procedure	27 - California fuel 2-day evap
Exhaust Test # for this Evap Test	NVVX10069673	Test Fuel Type	47 - CARB LEV3 E10 Premium Gasoline
Test Date	02/24/2021	Fuel	Gasoline
Fuel Batch ID	IGT455	Fuel Calibration Number	1
Vehicle Class	N/A	DF Type	Mfr. Determined
Verify Test Lab ID	Volvo Car Corporation		
E10 Evaporative Test Measurement Method	Calculated (1.08 x FID Total Hydrocarbons)		
Test Start Odometer Reading	4099	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value
HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)	0.1698	--

Manufacturer Test Comments 2-Day CARB Evaporative Test for evaporative families NVVXR0142E50.NVVXR0142E53,NVVXR0142E54. XC60 B5 AWD EDV worst case

Certification Region	Useful Life	Standard Level	Emission Name	Rounded Result	Add DF	Certification Level	Standard	Pass/Fail
Fed	150,000 miles	Federal Tier 3 Evap	HC-TOTAL-EQUIV	0.1698	0.0106	0.18	0.5	Pass
CA	150,000 miles	California LEV-III Zero Evap (Option 2)	HC-TOTAL-EQUIV	0.1698	0.0106	0.18	0.5	Pass

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50
Test #	NVVX10069710	Test Procedure	38 - CA fuel 3-day evap.
Exhaust Test # for this Evap Test	NVVX10069675	Test Fuel Type	47 - CARB LEV3 E10 Premium Gasoline
Test Date	03/17/2021	Fuel	Gasoline
Fuel Batch ID	IGT455	Fuel Calibration Number	1
Vehicle Class	N/A	DF Type	Mfr. Determined
Verify Test Lab ID	Volvo Car Corporation		
E10 Evaporative Test Measurement Method	Calculated (1.08 x FID Total Hydrocarbons)		
Test Start Odometer Reading	4201	Odometer Units	M
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	--	Road Speed Fan Usage	Yes
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)		

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value
HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)	0.1704	--

Manufacturer Test Comments 3-Day CARB Evaporative Test for evaporative families NVVXR0142E50,NVVXR0142E53,NVVXR0142E54 XC60 B5 AWD EDV worst case

Certification Region	Useful Life	Standard Level	Emission Name	Rounded Result	Add DF	Certification Level	Standard	Pass/Fail
Fed	150,000 miles	Federal Tier 3 Evap	HC-TOTAL-EQUIV	0.1704	0.0022	0.173	0.5	Pass
CA	150,000 miles	California LEV-III Zero Evap (Option 2)	HC-TOTAL-EQUIV	0.1704	0.0022	0.173	0.5	Pass

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50
-------------------	--------------	-------------------------------------	--------------

Test #	NVVX10069712	Test Procedure	24 - Federal fuel refueling test (ORVR)
Exhaust Test # for this Evap Test	NVVX10069702	Test Fuel Type	49 - Tier 3 E10 Premium Gasoline (9 RVP @Low Alt.)
Test Date	02/17/2021	Fuel	Gasoline
Fuel Batch ID	HAKK02	Fuel Calibration Number	1
Vehicle Class	N/A	DF Type	Mfr. Determined
Verify Test Lab ID	Volvo Car Corporation		
E10 Evaporative Test Measurement Method	Actual Total Hydrocarbon Equivalent Measurement (with speciation)		
Test Start Odometer Reading	4063	Odometer Units	M
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value
HC (Hydrocarbon for Running Loss and ORVR)	0.004	--

Manufacturer Test Comments

ORVR EPA Test for evaporative families NVVXR0142E50.NVVXR0142E53.NVVXR0142E54 XC60 B5 AWD. Tier3 E10 Fuel EDV worst case

Certification Region	Useful Life	Standard Level	Emission Name	Rounded Result	Add DF	Certification Level	Standard	Pass/Fail
Fed	150,000 miles	Federal Tier 3 Evap	HC	0.004	0	0.004	0.2	Pass
CA	150,000 miles	California LEV-III Zero Evap (Option 2)	HC	0.004	0	0.004	0.2	Pass

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50
-------------------	--------------	-------------------------------------	--------------

Test #	NVVX10069713	Test Procedure	37 - California Fuel Running Loss
Exhaust Test # for this Evap Test	NVVX10069675	Test Fuel Type	47 - CARB LEV3 E10 Premium Gasoline
Test Date	03/17/2021	Fuel	Gasoline
Fuel Batch ID	IGT455	Fuel Calibration Number	1
Vehicle Class	N/A	DF Type	Mfr. Determined
Verify Test Lab ID	Volvo Car Corporation		
E10 Evaporative Test Measurement Method	Calculated (1.08 x FID Total Hydrocarbons)		
Test Start Odometer Reading	4173	Odometer Units	M
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value
HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)	0.001	--

Manufacturer Test Comments

Running Loss (R/L) CARB Evaporative Test for evaporative families NVVXR0142E50.NVVXR0142E50.NVVXR0142E50 XC60 B5 AWD EDV worst case

Certification Region	Useful Life	Standard Level	Emission Name	Rounded Result	Add DF	Certification Level	Standard	Pass/Fail
Fed	150,000 miles	Federal Tier 3 Evap	HC-TOTAL-EQUIV	0.001	0	0.001	0.05	Pass
CA	150,000 miles	California LEV-III Zero Evap (Option 2)	HC-TOTAL-EQUIV	0.001	0	0.001	0.01	Pass

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50
Test #	NVVX10069711	Test Procedure	65 - Evap Canister Bleed Test
Exhaust Test # for this Evap Test	--	Test Fuel Type	47 - CARB LEV3 E10 Premium Gasoline
Test Date	04/09/2021	Fuel	Gasoline
Fuel Batch ID	IGT455	Fuel Calibration Number	1
Vehicle Class	N/A	DF Type	Mfr. Determined
Verify Test Lab ID	Volvo Car Corporation		
E10 Evaporative Test Measurement Method	Actual Total Hydrocarbon Equivalent Measurement (with speciation)		
Test Start Odometer Reading	4227	Odometer Units	M
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value
HC-TOTAL (Total Hydrocarbon)	0.0099	--

Manufacturer Test Comments

Evap Canister Bleed Test for evaporative families NVVXR0142E50.NVVXR0142E53.NVVXR0142E54 XC60 B5 AWD EDV Worst case

Certification Region	Useful Life	Standard Level	Emission Name	Rounded Result	Add DF	Certification Level	Standard	Pass/Fail
Fed	150,000 miles	Federal Tier 3 Evap	HC-TOTAL	0.0099	0	0.01	0.02	Pass
CA	150,000 miles	California LEV-III Zero Evap (Option 2)	HC-TOTAL	0.0099	0	0.01	0.02	Pass

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50									
Emission Data Vehicle Information												
Vehicle ID / Configuration	202317 / 0	Manufacturer Vehicle Configuration Number	0									
Original Test Group Name	PVVXJ02.0S30	Original Evaporative/Refueling Family	PVVXR0142E50									
Original Test Vehicle Model Year	2023											
Vehicle Model												
Represented Test Vehicle Make	Volvo	Represented Test Vehicle Model	XC90 B6 AWD									
Leak Family Details												
Leak Family Identifier	001	Leak Family Name	PVVXR0142E50-001									
Drive Sources and Fuel System Details												
<table border="1"> <thead> <tr> <th>Drive Source and Fuel#</th> <th>Drive Source</th> <th>Fuel</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Combustion Engine</td> <td>Gasoline</td> </tr> <tr> <td>2</td> <td>Electric Motor</td> <td>Electricity</td> </tr> </tbody> </table>				Drive Source and Fuel#	Drive Source	Fuel	1	Combustion Engine	Gasoline	2	Electric Motor	Electricity
Drive Source and Fuel#	Drive Source	Fuel										
1	Combustion Engine	Gasoline										
2	Electric Motor	Electricity										
Hybrid Indicator	Yes											
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	No											
Odometer Correction -- Initial	0	Odometer Correction Factor	1.0114									
Odometer Correction Sign	+ = System Miles is equal to (Test odometer reading * Correction factor) + Initial system miles											
Odometer Correction Units	Kilometers											
Engine Code	06_1	Rated Horsepower	295									
Displacement (liters)	1.969											
Air Aspiration Method	Turbocharged+Supercharged	Air Aspiration Method, if 'Other'										
Number of Air Aspiration Devices	2	Air Aspiration Device Configuration	Series									
Charge Air Cooler Type	Air	Drive Mode While Testing	2-Wheel Drive, Front									
Shift Indicator Light Usage	Not equipped	Aged Emission Components	4,000 (mi)									
Curb Weight (lbs)	4764	Equivalent Test Weight (pounds)	5000									
GVWR (lbs)	6150	N/V Ratio	25.7									
Axle Ratio	3.33											
Transmission Type	Semi-Automatic	# of Transmission Gears	8									
Transmission Lockup	Yes	Creeper Gear	No									

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50
-------------------	--------------	-------------------------------------	--------------

Dynamometer Coefficients:

Coefficient Category	Target Coefficients			Set Coefficients			EPA Calculated Total Road Load Horse Power for City/Highway/Evap Coefficients
	A (lbf)	B (lbf/mph)	C (lbf/mph**2)	A (lbf)	B (lbf/mph)	C (lbf/mph**2)	
City/Highway/Evap	39.79	0.2239	0.02715	18.996	0.22718	0.026398	15.8
Cold CO	44.211	0.2488	0.03017	21.36	0.35781	0.028174	N/A
US06	39.79	0.2239	0.02715	18.996	0.22718	0.026398	N/A

Emission Control Device Comments

--

Manufacturer Test Vehicle Comments

EDV Worst Case Dyno Setting. TRLHP 15.8, coast down target 19,52, XC90 B6 AWD.

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50
Test #	PVVX10074003	Test Procedure	35 - California fuel 3-day exhaust
Exhaust Test # for this Evap Test	--	Test Fuel Type	47 - CARB LEV3 E10 Premium Gasoline
Test Date	02/01/2022	Fuel	Gasoline
Fuel Batch ID	IJT455	Fuel Calibration Number	1
Vehicle Class	LDT2 (LVW 3751-5750, GVW 0-6000)	DF Type	Mfr. Determined
Verify Test Lab ID	Volvo Car Corporation		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	6435	Odometer Units	K
4WD Test Dyno	No	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

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
CO2 BAG 1 (Bag 1 Carbon Dioxide)	342	--
FE BAG 1 (Bag 1 Fuel Economy)	25.5139	25.5139
CO2 BAG 2 (Bag 2 Carbon Dioxide)	341	--
FE BAG 2 (Bag 2 Fuel Economy)	25.5958	25.5958
CO2 BAG 3 (Bag 3 Carbon Dioxide)	304	--
FE BAG 3 (Bag 3 Fuel Economy)	28.6671	28.6671
CO2 BAG 4 (Bag 4 Carbon Dioxide)	351	--
FE BAG 4 (Bag 4 Fuel Economy)	24.8539	24.8539
METHANE (CH4 - Methane)	0.0012	--
CO (Carbon Monoxide)	0.21	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	-0.97	--
DT-EER (Drive Trace Energy Economy Rating)	-1.24	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	-1.6	--
MFR FE (Manufacturer Fuel Economy)	26.1066	26.1066
NOX (Nitrogen Oxide)	0.009	--
N2O (Nitrous Oxide)	0.0002	--
HC-NM (Non-methane Hydrocarbon)	0.0035	--
NMOG (Non-methane organic gases)	0.0038	--
PM (Particulate Matter)	0.0006	--
HC-TOTAL (Total Hydrocarbon)	0.004	--

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50
-------------------	--------------	-------------------------------------	--------------

Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE
Carbon-Related Exhaust Emissions	334.3421	999

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	334	--

Manufacturer Test Comments MY23 EDV XC90 B5 AWD

Certification Summary Information Report

Test Group		VVVXT02.0S30			Evaporative/Refueling Family					VVVXR0142E50		
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	50,000 miles	Federal Tier 3 Bin 30	HC-TOTAL	0.004	--	--	--	0.001	--	0.005	0.410	Pass
Fed	120,000 miles	Federal Tier 3 Bin 30	CREE	999	--	--	--	0.07	--	999	--	--
Fed	120,000 miles	Federal Tier 3 Bin 30	METHANE	0.0012	--	--	--	0.0006	--	0.002	0.030	Pass
Fed	120,000 miles	Federal Tier 3 Bin 30	N2O	0.0002	--	--	--	0	--	0	0.010	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	CO	0.21	--	--	--	0.05	--	0.26	1.00	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	CO-COMP	0.4	--	--	--	0	--	0.4	4.2	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG	0.0038	--	1.101	--	0.0014	--	0.005	999.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG+NOX	0.0128	--	--	--	--	--	0.016	0.030	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG+NOX-COMP	0.0107	--	--	--	0	--	0.011	0.060	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NOX	0.009	--	--	--	0.002	--	0.011	999.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	PM	0.0006	--	--	--	0	--	0.001	0.003	Pass
CA	120,000 miles	California LEV-III SULEV30	CREE	999	--	--	--	0.07	--	999	--	--
CA	120,000 miles	California LEV-III SULEV30	METHANE	0.0012	--	--	--	0.0006	--	0.002	0.030	Pass
CA	120,000 miles	California LEV-III SULEV30	N2O	0.0002	--	--	--	0	--	0	0.010	Pass
CA	150,000 miles	California LEV-III SULEV30	CO	0.21	--	--	--	0.05	--	0.26	1.00	Pass
CA	150,000 miles	California LEV-III SULEV30	NMOG	0.0038	--	1.101	--	0.0014	--	0.005	999.999	Pass
CA	150,000 miles	California LEV-III SULEV30	NMOG+NOX	0.0128	--	--	--	--	--	0.016	0.030	Pass
CA	150,000 miles	California LEV-III SULEV30	NOX	0.009	--	--	--	0.002	--	0.011	999.999	Pass
CA	150,000 miles	California LEV-III SULEV30	PM	0.0006	--	--	--	0	--	0.001	0.003	Pass

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

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50
Test #	PVVX10074007	Test Procedure	11 - Cold CO
Exhaust Test # for this Evap Test	--	Test Fuel Type	29 - Cold CO E10 Premium Gasoline (Tier 3)
Test Date	02/10/2022	Fuel	Gasoline
Fuel Batch ID	FHTW10	Fuel Calibration Number	1
Vehicle Class	LDT2 (LVW 3751-5750, GVW 0-6000)	DF Type	Mfr. Determined
Verify Test Lab ID	Volvo Car Corporation		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	6629	Odometer Units	K
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
CO2 BAG 1 (Bag 1 Carbon Dioxide)	490	--
FE BAG 1 (Bag 1 Fuel Economy)	17.8108	17.8108
CO2 BAG 2 (Bag 2 Carbon Dioxide)	410	--
FE BAG 2 (Bag 2 Fuel Economy)	21.2668	21.2668
CO2 BAG 3 (Bag 3 Carbon Dioxide)	361	--
FE BAG 3 (Bag 3 Fuel Economy)	24.2021	24.2021
METHANE (CH4 - Methane)	0.0042	--
CO (Carbon Monoxide)	0.37	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	-1.54	--
DT-EER (Drive Trace Energy Economy Rating)	-1.87	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	-3.01	--
MFR FE (Manufacturer Fuel Economy)	21.1262	21.1262
NOX (Nitrogen Oxide)	0.014	--
N2O (Nitrous Oxide)	0.0002	--
HC-NM (Non-methane Hydrocarbon)	0.0142	--
NMOG (Non-methane organic gases)	0.0148	--
PM (Particulate Matter)	0	--
HC-TOTAL (Total Hydrocarbon)	0.017	--

Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE
Carbon-Related Exhaust Emissions	413.6328	--

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50
-------------------	--------------	-------------------------------------	--------------

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	413	--

Manufacturer Test Comments MY23 EDV XC90 B5 AWD

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	50,000 miles	Federal Tier 3 Bin 30	CO	0.37	--	--	--	0.02	--	0.4	12.5	Pass
Fed	120,000 miles	Federal Tier 3 Bin 30	HC-NM	0.014	--	--	--	0.001	--	0.02	0.30	Pass
CA	50,000 miles	California LEV-III SULEV30	CO	0.37	--	--	--	0.02	--	0.4	12.5	Pass

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50
Test #	PVVX10074008	Test Procedure	51 - CA fuel 50 Deg(F) exhaust test
Exhaust Test # for this Evap Test	--	Test Fuel Type	47 - CARB LEV3 E10 Premium Gasoline
Test Date	02/03/2022	Fuel	Gasoline
Fuel Batch ID	IJT455	Fuel Calibration Number	1
Vehicle Class	LDT2 (LVW 3751-5750, GVW 0-6000)	DF Type	Mfr. Determined
Verify Test Lab ID	Volvo Car Corporation		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	6551	Odometer Units	K
4WD Test Dyno	No	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

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
CO2 BAG 1 (Bag 1 Carbon Dioxide)	373	--
FE BAG 1 (Bag 1 Fuel Economy)	23.3535	23.3535
CO2 BAG 2 (Bag 2 Carbon Dioxide)	359	--
FE BAG 2 (Bag 2 Fuel Economy)	24.3007	24.3007
CO2 BAG 3 (Bag 3 Carbon Dioxide)	314	--
FE BAG 3 (Bag 3 Fuel Economy)	27.7721	27.7721
CO2 BAG 4 (Bag 4 Carbon Dioxide)	351	--
FE BAG 4 (Bag 4 Fuel Economy)	24.8584	24.8584
METHANE (CH4 - Methane)	0.0019	--
CO (Carbon Monoxide)	0.25	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	0.98	--
DT-EER (Drive Trace Energy Economy Rating)	-0.35	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	1.44	--
MFR FE (Manufacturer Fuel Economy)	25.1248	25.1248
NOX (Nitrogen Oxide)	0.008	--
N2O (Nitrous Oxide)	0.0003	--
HC-NM (Non-methane Hydrocarbon)	0.0037	--
NMOG (Non-methane organic gases)	0.0041	--
PM (Particulate Matter)	0.0016	--
HC-TOTAL (Total Hydrocarbon)	0.005	--

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50
-------------------	--------------	-------------------------------------	--------------

Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE
Carbon-Related Exhaust Emissions	347.4079	--

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	347	--

Manufacturer Test Comments MY23 EDV XC90 B5 AWD -50F

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	4,000 miles	California LEV-III SULEV30	CO	0.25	--	--	--	0	--	0.2	1.0	Pass
CA	4,000 miles	California LEV-III SULEV30	NMOG	0.0041	--	1.101	--	0	--	0.004	999.999	Pass
CA	4,000 miles	California LEV-III SULEV30	NMOG+NOX	0.0121	--	--	--	--	--	0.012	0.060	Pass
CA	4,000 miles	California LEV-III SULEV30	NOX	0.008	--	--	--	0	--	0.008	999.999	Pass

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50
Test #	PVVX10074004	Test Procedure	3 - HWFE
Exhaust Test # for this Evap Test	--	Test Fuel Type	47 - CARB LEV3 E10 Premium Gasoline
Test Date	02/01/2022	Fuel	Gasoline
Fuel Batch ID	IJT455	Fuel Calibration Number	1
Vehicle Class	LDT2 (LVW 3751-5750, GVW 0-6000)	DF Type	Mfr. Determined
Verify Test Lab ID	Volvo Car Corporation		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	6458	Odometer Units	K
4WD Test Dyno	No	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

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
METHANE (CH4 - Methane)	0.0001	--
CO (Carbon Monoxide)	0.29	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	-5.74	--
DT-EER (Drive Trace Energy Economy Rating)	-0.85	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	-7.23	--
MFR FE (Manufacturer Fuel Economy)	37.0708	37.0708
NOX (Nitrogen Oxide)	0.001	--
N2O (Nitrous Oxide)	0	--
HC-NM (Non-methane Hydrocarbon)	0	--
NMOG (Non-methane organic gases)	0	--
PM (Particulate Matter)	0.0001	--
HC-TOTAL (Total Hydrocarbon)	0	--

Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE
Carbon-Related Exhaust Emissions	235.4556	999

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	235	--

Manufacturer Test Comments

MY23 EDV XC90 B5 AWD

Certification Summary Information Report

Test Group		VVVXT02.0S30				Evaporative/Refueling Family				VVVXR0142E50		
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 30	CREE	999	--	--	--	0.07	--	999	--	--
Fed	120,000 miles	Federal Tier 3 Bin 30	METHANE	0.0001	--	--	--	0.0006	--	0.001	0.030	Pass
Fed	120,000 miles	Federal Tier 3 Bin 30	N2O	0	--	--	--	0	--	0	0.010	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	CO	0.29	--	--	--	0.05	--	0.3	1.0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG	0	--	1.03	--	0.0014	--	0.001	999.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG+NOX	0.001	--	--	--	--	--	0.004	0.030	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NOX	0.001	--	--	--	0.002	--	0.003	999.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	PM	0.0001	--	--	--	0	--	0	0.003	Pass
CA	120,000 miles	California LEV-III SULEV30	CREE	999	--	--	--	0.07	--	999	--	--
CA	120,000 miles	California LEV-III SULEV30	METHANE	0.0001	--	--	--	0.0006	--	0.001	0.030	Pass
CA	120,000 miles	California LEV-III SULEV30	N2O	0	--	--	--	0	--	0	0.010	Pass
CA	150,000 miles	California LEV-III SULEV30	CO	0.29	--	--	--	0.05	--	0.3	1.0	Pass
CA	150,000 miles	California LEV-III SULEV30	NMOG	0	--	1.03	--	0.0014	--	0.001	999.999	Pass
CA	150,000 miles	California LEV-III SULEV30	NMOG+NOX	0.001	--	--	--	--	--	0.004	0.030	Pass
CA	150,000 miles	California LEV-III SULEV30	NOX	0.001	--	--	--	0.002	--	0.003	999.999	Pass
CA	150,000 miles	California LEV-III SULEV30	PM	0.0001	--	--	--	0	--	0	0.003	Pass

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

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50
Test #	PVVX10074005	Test Procedure	90 - US06
Exhaust Test # for this Evap Test	--	Test Fuel Type	47 - CARB LEV3 E10 Premium Gasoline
Test Date	02/01/2022	Fuel	Gasoline
Fuel Batch ID	IJT455	Fuel Calibration Number	1
Vehicle Class	LDT2 (LVW 3751-5750, GVW 0-6000)	DF Type	Mfr. Determined
Verify Test Lab ID	Volvo Car Corporation		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	6503	Odometer Units	K
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
CO2 BAG 1 (Bag 1 Carbon Dioxide)	314	--
FE BAG 1 (Bag 1 Fuel Economy)	27.7655	27.7655
CO2 BAG 2 (Bag 2 Carbon Dioxide)	560	--
FE BAG 2 (Bag 2 Fuel Economy)	15.5474	15.5474
METHANE (CH4 - Methane)	0.0014	--
CO (Carbon Monoxide)	0.56	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	-6.11	--
DT-EER (Drive Trace Energy Economy Rating)	-2.19	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	-11.03	--
MFR FE (Manufacturer Fuel Economy)	23.6617	23.6617
NOX (Nitrogen Oxide)	0.003	--
N2O (Nitrous Oxide)	0	--
HC-NM (Non-methane Hydrocarbon)	0.0014	--
NMOG (Non-methane organic gases)	0.0014	--
PM (Particulate Matter)	0.0017	--
HC-NM+NOX (SFTP Non-methane Hydrocarbon + Nitrogen Oxides for US06 or SC03)	0.0044	--
HC-TOTAL (Total Hydrocarbon)	0.003	--

Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE
Carbon-Related Exhaust Emissions	368.8889	--

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50
-------------------	--------------	-------------------------------------	--------------

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	368	--

Manufacturer Test Comments MY23 EDV XC90 B5 AWD

Certification Region	Useful Life	Standard Level	Emission Name	Rounded Result	RAF	NMOG/NM HC Ratio	Diesel Adjustment Factor	Add DF	Mult DF	Certification Level	Standard	Pass/Fail
Fed	150,000 miles	Federal Tier 3 Bin 30	CO	0.56	--	--	--	0.05	--	0.61	999.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG	0.0014	--	1.03	--	0.0014	--	0.003	999.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NOX	0.003	--	--	--	0.002	--	0.005	999.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	PM	0.0017	--	--	--	0	--	0.002	0.006	Pass
CA	150,000 miles	California LEV-III SULEV30	CO	0.56	--	--	--	0.05	--	0.6	9.6	Pass
CA	150,000 miles	California LEV-III SULEV30	NMOG	0.0014	--	1.03	--	0.0014	--	0.003	999.999	Pass
CA	150,000 miles	California LEV-III SULEV30	NMOG+NOX	0.0044	--	--	--	--	--	0.008	0.030	Pass
CA	150,000 miles	California LEV-III SULEV30	NOX	0.003	--	--	--	0.002	--	0.005	999.999	Pass
CA	150,000 miles	California LEV-III SULEV30	PM	0.0017	--	--	--	0	--	0.002	0.006	Pass

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50
Test #	PVVX10074006	Test Procedure	95 - SC03
Exhaust Test # for this Evap Test	--	Test Fuel Type	47 - CARB LEV3 E10 Premium Gasoline
Test Date	02/14/2022	Fuel	Gasoline
Fuel Batch ID	IJT455	Fuel Calibration Number	1
Vehicle Class	LDT2 (LVW 3751-5750, GVW 0-6000)	DF Type	Mfr. Determined
Verify Test Lab ID	Volvo Car Corporation		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	6646	Odometer Units	K
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
METHANE (CH4 - Methane)	0.0017	--
CO (Carbon Monoxide)	0.32	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	-0.52	--
DT-EER (Drive Trace Energy Economy Rating)	-1.02	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	0.09	--
MFR FE (Manufacturer Fuel Economy)	25.7853	25.7853
NOX (Nitrogen Oxide)	0.004	--
N2O (Nitrous Oxide)	0.0008	--
HC-NM (Non-methane Hydrocarbon)	0.0002	--
NMOG (Non-methane organic gases)	0.0002	--
PM (Particulate Matter)	0.0026	--
HC-NM+NOX (SFTP Non-methane Hydrocarbon + Nitrogen Oxides for US06 or SC03)	0.0042	--
HC-TOTAL (Total Hydrocarbon)	0.002	--

Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE
Carbon-Related Exhaust Emissions	338.5088	--

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	338	--

Manufacturer Test Comments MY23 EDV XC90 B5 AWD

Certification Summary Information Report

Test Group		VVVXT02.0S30				Evaporative/Refueling Family				VVVXR0142E50		
Certification Region	Useful Life	Standard Level	Emission Name	Rounded Result	RAF	NMOG/NM HC Ratio	Diesel Adjustment Factor	Add DF	Mult DF	Certification Level	Standard	Pass/Fail
Fed	150,000 miles	Federal Tier 3 Bin 30	CO	0.32	--	--	--	0.05	--	0.37	999.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG	0.0002	--	1.03	--	0.0014	--	0.002	999.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NOX	0.004	--	--	--	0.002	--	0.006	999.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	PM	0.0026	--	--	--	0	--	0.003	999.999	Pass
CA	150,000 miles	California LEV-III SULEV30	CO	0.32	--	--	--	0.05	--	0.4	1.0	Pass
CA	150,000 miles	California LEV-III SULEV30	NMOG	0.0002	--	1.03	--	0.0014	--	0.002	999.999	Pass
CA	150,000 miles	California LEV-III SULEV30	NMOG+NOX	0.0042	--	--	--	--	--	0.008	0.030	Pass
CA	150,000 miles	California LEV-III SULEV30	NOX	0.004	--	--	--	0.002	--	0.006	999.999	Pass

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50
Fuel Properties			
Fuel Batch ID	IJT455	Fuel Calibration Number	1
Test Fuel Type	47 - CARB LEV3 E10 Premium Gasoline	Fuel Batch Calibration Date	10/21/2020
Fuel Batch Calibration Effective Date	05/27/2021	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	0.748
Fuel Ethanol Volume Percent (%)	9.6	Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)	17810
Fuel Net Heat of Combustion (E10) (MJ/kg)	--	Fuel Carbon Mass Fraction (E10)	--
Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0)	0.828	Weight Fraction CO2	--
Fuel Batch ID	IGT455	Fuel Calibration Number	1
Test Fuel Type	47 - CARB LEV3 E10 Premium Gasoline	Fuel Batch Calibration Date	07/13/2020
Fuel Batch Calibration Effective Date	10/21/2020	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	0.749
Fuel Ethanol Volume Percent (%)	10	Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)	17770
Fuel Net Heat of Combustion (E10) (MJ/kg)	--	Fuel Carbon Mass Fraction (E10)	--
Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0)	0.828	Weight Fraction CO2	--
Fuel Batch ID	HAKK02	Fuel Calibration Number	1
Test Fuel Type	49 - Tier 3 E10 Premium Gasoline (9 RVP @Low Alt.)	Fuel Batch Calibration Date	10/25/2020
Fuel Batch Calibration Effective Date	05/10/2020	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	0.752
Fuel Ethanol Volume Percent (%)	9.7	Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)	18052
Fuel Net Heat of Combustion (E10) (MJ/kg)	--	Fuel Carbon Mass Fraction (E10)	--
Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0)	0.827	Weight Fraction CO2	--
Fuel Batch ID	FHTW10	Fuel Calibration Number	1
Test Fuel Type	29 - Cold CO E10 Premium Gasoline (Tier 3)	Fuel Batch Calibration Date	10/17/2017
Fuel Batch Calibration Effective Date	01/01/2019	Fuel Batch Calibration Ineffective Date	--
Carbon Weight Fraction NMHC	--	Carbon Weight Fraction HC	--
Exhaust Carbon Weight Fraction	--	Fuel Methanol Volume Fraction	--

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50
Fuel Density (grams/cubic ft)	--	Fuel Specific Gravity	0.749
Fuel Ethanol Volume Percent (%)	10.1	Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)	17756
Fuel Net Heat of Combustion (E10) (MJ/kg)	--	Fuel Carbon Mass Fraction (E10)	--
Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0)	0.828	Weight Fraction CO2	--

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50
-------------------	--------------	-------------------------------------	--------------

Consolidated List of Standards

Exhaust Standards

Cert Region	Federal	Cert/In-Use Code	Both
Vehicle Class	LDT2 (LVW 3751-5750, GVW 0-6000)	Standard Level	Federal Tier 3 Bin 30
Fuel	Gasoline	Test Procedure	SC03

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	--	--	--	--	--	--	0.05	999.999
150,000 miles	CO-COMP	--	--	--	--	--	--	0	4.2
150,000 miles	NMOG	--	--	1.03	--	--	--	0.0014	999.999
150,000 miles	NMOG+NOX-COMP	--	--	--	--	--	--	0	0.060
150,000 miles	NOX	--	--	--	--	--	--	0.002	999.999
150,000 miles	PM	--	--	--	--	--	--	0	999.999

Cert Region	Federal	Cert/In-Use Code	Both
Vehicle Class	LDT2 (LVW 3751-5750, GVW 0-6000)	Standard Level	Federal Tier 3 Bin 30
Fuel	Gasoline	Test Procedure	HWFE

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	--	--	--	--	--	--	0.07	999.999
120,000 miles	METHANE	--	--	--	--	--	--	0.0006	0.030
120,000 miles	N2O	--	--	--	--	--	--	0	0.010
150,000 miles	CO	--	--	--	--	--	--	0.05	1.0
150,000 miles	NMOG	--	--	1.03	--	--	--	0.0014	999.999
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0.0034	0.030
150,000 miles	NOX	--	--	--	--	--	--	0.002	999.999
150,000 miles	PM	--	--	--	--	--	--	0	0.003

Certification Summary Information Report

Test Group		VVVXT02.0S30			Evaporative/Refueling Family			VVVXR0142E50		
Cert Region		Federal			Cert/In-Use Code			Both		
Vehicle Class		LDT2 (LVW 3751-5750, GVW 0-6000)			Standard Level			Federal Tier 3 Bin 30		
Fuel		Gasoline			Test Procedure			US06		
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	--	--	--	--	--	--	0.05	999.999	
150,000 miles	CO-COMP	--	--	--	--	--	--	0	4.2	
150,000 miles	NMOG	--	--	1.03	--	--	--	0.0014	999.999	
150,000 miles	NMOG+NOX-COMP	--	--	--	--	--	--	0	0.060	
150,000 miles	NOX	--	--	--	--	--	--	0.002	999.999	
150,000 miles	PM	--	--	--	--	--	--	0	0.006	
Cert Region		California + CAA Section 177 states			Cert/In-Use Code			Cert		
Vehicle Class		LDT2 (LVW 3751-5750, GVW 0-6000)			Standard Level			California LEV-III SULEV30		
Fuel		Gasoline			Test Procedure			CA fuel 50 Deg(F) exhaust test		
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std	
4,000 miles	CO	--	--	--	--	--	--	0	1.0	
4,000 miles	NMOG	--	--	1.101	--	--	--	0	999.999	
4,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0.060	
4,000 miles	NOX	--	--	--	--	--	--	0	999.999	
Cert Region		California + CAA Section 177 states			Cert/In-Use Code			Both		
Vehicle Class		LDT2 (LVW 3751-5750, GVW 0-6000)			Standard Level			California LEV-III SULEV30		
Fuel		Gasoline			Test Procedure			HWFE		
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	--	--	--	--	--	--	0.07	999.999	
120,000 miles	METHANE	--	--	--	--	--	--	0.0006	0.030	
120,000 miles	N2O	--	--	--	--	--	--	0	0.010	
150,000 miles	CO	--	--	--	--	--	--	0.05	1.0	
150,000 miles	NMOG	--	--	1.03	--	--	--	0.0014	999.999	
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0.0034	0.030	
150,000 miles	NOX	--	--	--	--	--	--	0.002	999.999	
150,000 miles	PM	--	--	--	--	--	--	0	0.003	

Certification Summary Information Report

Test Group		VVVXT02.0S30			Evaporative/Refueling Family			VVVXR0142E50		
Cert Region		Federal			Cert/In-Use Code			Both		
Vehicle Class		LDT2 (LVW 3751-5750, GVW 0-6000)			Standard Level			Federal Tier 3 Bin 30		
Fuel		Gasoline			Test Procedure			California fuel 3-day exhaust		
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std	
50,000 miles	HC-TOTAL	--	--	--	--	--	--	0.001	0.410	
120,000 miles	CREE	--	--	--	--	--	--	0.07	999.999	
120,000 miles	METHANE	--	--	--	--	--	--	0.0006	0.030	
120,000 miles	N2O	--	--	--	--	--	--	0	0.010	
150,000 miles	CO	--	--	--	--	--	--	0.05	1.00	
150,000 miles	CO-COMP	--	--	--	--	--	--	0	4.2	
150,000 miles	NMOG	--	--	1.101	--	--	--	0.0014	999.999	
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0.0034	0.030	
150,000 miles	NMOG+NOX-COMP	--	--	--	--	--	--	0	0.060	
150,000 miles	NOX	--	--	--	--	--	--	0.002	999.999	
150,000 miles	PM	--	--	--	--	--	--	0	0.003	
Cert Region		California + CAA Section 177 states			Cert/In-Use Code			Both		
Vehicle Class		LDT2 (LVW 3751-5750, GVW 0-6000)			Standard Level			California LEV-III SULEV30		
Fuel		Gasoline			Test Procedure			SC03		
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	--	--	--	--	--	--	0.05	1.0	
150,000 miles	NMOG	--	--	1.03	--	--	--	0.0014	999.999	
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0.0034	0.030	
150,000 miles	NOX	--	--	--	--	--	--	0.002	999.999	

Certification Summary Information Report

Test Group		VVVXT02.0S30			Evaporative/Refueling Family			VVVXR0142E50		
Cert Region		California + CAA Section 177 states			Cert/In-Use Code			Both		
Vehicle Class		LDT2 (LVW 3751-5750, GVW 0-6000)			Standard Level			California LEV-III SULEV30		
Fuel		Gasoline			Test Procedure			California fuel 3-day exhaust		
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	--	--	--	--	--	--	0.07	999.999	
120,000 miles	METHANE	--	--	--	--	--	--	0.0006	0.030	
120,000 miles	N2O	--	--	--	--	--	--	0	0.010	
150,000 miles	CO	--	--	--	--	--	--	0.05	1.00	
150,000 miles	NMOG	--	--	1.101	--	--	--	0.0014	999.999	
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0.0034	0.030	
150,000 miles	NOX	--	--	--	--	--	--	0.002	999.999	
150,000 miles	PM	--	--	--	--	--	--	0	0.003	

Cert Region		Federal			Cert/In-Use Code			Cert		
Vehicle Class		LDT2 (LVW 3751-5750, GVW 0-6000)			Standard Level			Federal Tier 3 Bin 30		
Fuel		Gasoline			Test Procedure			Cold CO		
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std	
50,000 miles	CO	--	--	--	--	--	--	0.02	12.5	
120,000 miles	HC-NM	--	--	--	--	--	--	0.001	0.30	

Cert Region		California + CAA Section 177 states			Cert/In-Use Code			Both		
Vehicle Class		LDT2 (LVW 3751-5750, GVW 0-6000)			Standard Level			California LEV-III SULEV30		
Fuel		Gasoline			Test Procedure			US06		
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	--	--	--	--	--	--	0.05	9.6	
150,000 miles	NMOG	--	--	1.03	--	--	--	0.0014	999.999	
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0.0034	0.030	
150,000 miles	NOX	--	--	--	--	--	--	0.002	999.999	
150,000 miles	PM	--	--	--	--	--	--	0	0.006	

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50
Cert Region	California + CAA Section 177 states	Cert/In-Use Code	Cert
Vehicle Class	LDT2 (LVW 3751-5750, GVW 0-6000)	Standard Level	California LEV-III SULEV30
Fuel	Gasoline	Test Procedure	Cold CO

Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
50,000 miles	CO	--	--	--	--	--	--	0.02	12.5

Evaporative/Refueling Standards

Evaporative/Refueling Family	VVVXR0142E50	Cert Region	Federal
Cert/In-Use Code	Both	Standard Level	Federal Tier 3 Evap
Test Procedure	Federal fuel refueling test (ORVR)		

Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF
Gasoline	150,000 miles	HC	--	0.200	0

Evaporative/Refueling Family	VVVXR0142E50	Cert Region	Federal
Cert/In-Use Code	Both	Standard Level	Federal Tier 3 Evap
Test Procedure	Evap Canister Bleed Test		

Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF
Gasoline	150,000 miles	HC-TOTAL	--	0.020	0

Evaporative/Refueling Family	VVVXR0142E50	Cert Region	California + CAA Section 177 states California LEV-III Zero Evap (Option 2)
Cert/In-Use Code	Both	Standard Level	
Test Procedure	CA fuel 3-day evap.		

Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF
Gasoline	150,000 miles	HC-TOTAL-EQUIV	--	0.500	0.0022

Evaporative/Refueling Family	VVVXR0142E50	Cert Region	California + CAA Section 177 states California LEV-III Zero Evap (Option 2)
Cert/In-Use Code	Both	Standard Level	
Test Procedure	California fuel 2-day evap		

Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF
Gasoline	150,000 miles	HC-TOTAL-EQUIV	--	0.500	0.0106

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50		
Evaporative/Refueling Family	VVVXR0142E50	Cert Region	Federal		
Cert/In-Use Code	Both	Standard Level	Federal Tier 3 Evap		
Test Procedure	CA fuel 3-day evap.				
Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF
Gasoline	150,000 miles	HC-TOTAL-EQUIV	--	0.500	0.0022
Evaporative/Refueling Family	VVVXR0142E50	Cert Region	Federal		
Cert/In-Use Code	Both	Standard Level	Federal Tier 3 Evap		
Test Procedure	California fuel 2-day evap				
Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF
Gasoline	150,000 miles	HC-TOTAL-EQUIV	--	0.500	0.0106
Evaporative/Refueling Family	VVVXR0142E50	Cert Region	Federal		
Cert/In-Use Code	Both	Standard Level	Federal Tier 3 Evap		
Test Procedure	California Fuel Running Loss				
Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF
Gasoline	150,000 miles	HC-TOTAL-EQUIV	--	0.050	0
Evaporative/Refueling Family	VVVXR0142E50	Cert Region	California + CAA Section 177 states California LEV-III Zero Evap (Option 2)		
Cert/In-Use Code	Both	Standard Level			
Test Procedure	Evap Canister Bleed Test				
Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF
Gasoline	150,000 miles	HC-TOTAL	--	0.020	0
Evaporative/Refueling Family	VVVXR0142E50	Cert Region	California + CAA Section 177 states California LEV-III Zero Evap (Option 2)		
Cert/In-Use Code	Both	Standard Level			
Test Procedure	Federal fuel refueling test (ORVR)				
Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF
Gasoline	150,000 miles	HC	--	0.200	0

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50		
Evaporative/Refueling Family	VVVXR0142E50	Cert Region	California + CAA Section 177 states California LEV-III Zero Evap (Option 2)		
Cert/In-Use Code	Both	Standard Level			
Test Procedure	California Fuel Running Loss				
Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF
Gasoline	150,000 miles	HC-TOTAL-EQUIV	--	0.010	0

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50
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	COMB-CREE	Combined Carbon-Related Exhaust Emissions
CO	Carbon Monoxide	COMB-OPT-CREE	Combined Optional Carbon-Related Exhaust Emissions
CO2	Carbon dioxide	HC-TOTAL-EQUIV	Total Hydrocarbon equivalent - Evap only
CREE	Carbon-Related Exhaust Emissions	METHANE-COMB	Combined CH4 for HD 2b/3 vehicles only
OPT-CREE	Optional Carbon-Related Exhaust Emissions	N2O-COMB	Combined Nitrous Oxide for HD 2b/3 vehicles only
NOX	Nitrogen Oxide	LEAK-DIA	Effective Leak Diameter (inches)
PM	Particulate Matter	LEAK-GAS CAP	Gas Cap Leakage (cc/min)
PM-COMP	SFTP Composite Particulate Matter	CO2-COMB	Combined Carbon Dioxide for HD 2b/3 Vehicles Only
HC-NM	Non-methane Hydrocarbon	KW-HRS	Integrated DC KW-HRS
OMHCE	Organic material Hydrocarbon Equivalent	CH4 BAG 1	Bag 1 Methane
OMNMHCE	Organic material non-methane HC equivalent	CH4 BAG 2	Bag 2 Methane
NMOG	Non-methane organic gases	CH4 BAG 3	Bag 3 Methane
HCHO	Formaldehyde	CH4 BAG 4	Bag 4 Methane
H3C2HO	Acetaldehyde	CO BAG 1	Bag 1 Carbon Monoxide
HC-NM+NOX	SFTP Non-methane Hydrocarbon + Nitrogen Oxides for US06 or SC03	CO BAG 2	Bag 2 Carbon Monoxide
HC-NM+NOX-COMP	SFTP Composite Non-methane Hydrocarbon + Nitrogen Oxides	CO BAG 3	Bag 3 Carbon Monoxide
CO-COMP	SFTP Composite Carbon Monoxide	CO BAG 4	Bag 4 Carbon Monoxide
ETHANOL	C2H5OH - Ethanol	NMOG BAG 1	Bag 1 Non-methane organic gases
FE BAG 1	Bag 1 Fuel Economy	NMOG BAG 2	Bag 2 Non-methane organic gases
FE BAG 2	Bag 2 Fuel Economy	NMOG BAG 3	Bag 3 Non-methane organic gases
FE BAG 3	Bag 3 Fuel Economy	NMOG BAG 4	Bag 4 Non-methane organic gases
FE BAG 4	Bag 4 Fuel Economy	ACT-DISTANCE BAG 1	Bag 1 Actual Distance
MFR FE	Manufacturer Fuel Economy	ACT-DISTANCE BAG 2	Bag 2 Actual Distance
HC	Hydrocarbon for Running Loss and ORVR	ACT-DISTANCE BAG 3	Bag 3 Actual Distance
METHANE	CH4 - Methane	ACT-DISTANCE BAG 4	Bag 4 Actual Distance
METHANOL	CH3OH - Methanol	HC-TOTAL BAG 1	Bag 1 Total Hydrocarbon
N2O	Nitrous Oxide	HC-TOTAL BAG 2	Bag 2 Total Hydrocarbon
SPITBACK	Spitback Hydrocarbon in grams	HC-TOTAL BAG 3	Bag 3 Total Hydrocarbon
AMP-HRS	Integrated Amp-hours	HC-TOTAL BAG 4	Bag 4 Total Hydrocarbon
START-SOC	System Start State of Charge Watt-hours	WATT-HRS BAG 1	Bag 1 Watt Hours
END-SOC	System End State of Charge Watt-hours	WATT-HRS BAG 2	Bag 2 Watt Hours

Certification Summary Information Report

Test Group		VVVXT02.0S30	Evaporative/Refueling Family		VVVXR0142E50
ACT-DISTANCE	Actual Distance Driven (miles)		WATT-HRS BAG 3	Bag 3 Watt Hours	
AS-VOLT	Average System Voltage		WATT-HRS BAG 4	Bag 4 Watt Hours	
CO2 BAG 1	Bag 1 Carbon Dioxide		WATT-HRS	Watt Hours	
CO2 BAG 2	Bag 2 Carbon Dioxide		HC-NM BAG 1	Bag 1 Non-methane Hydrocarbon	
CO2 BAG 3	Bag 3 Carbon Dioxide		HC-NM BAG 2	Bag 2 Non-methane Hydrocarbon	
CO2 BAG 4	Bag 4 Carbon Dioxide		HC-NM BAG 3	Bag 3 Non-methane Hydrocarbon	
NMOG+NOX	Non-methane organic gases plus Nitrogen Oxides		HC-NM BAG 4	Bag 4 Non-methane Hydrocarbon	
NMOG+NOX-COMP	SFTP Composite Non-methane Organic Gases + Nitrogen Oxides		N2O BAG 1	Bag 1 Nitrous Oxide	
DT-IWRR	Drive Trace Inertia Work Ratio Rating		N2O BAG 2	Bag 2 Nitrous Oxide	
DT-ASCR	Drive Trace Absolute Speed Change Rating		N2O BAG 3	Bag 3 Nitrous Oxide	
DT-EER	Drive Trace Energy Economy Rating		N2O BAG 4	Bag 4 Nitrous Oxide	
Certification Region					
CA	California + CAA Section 177 states		FA	Federal	
Exhaust Emission Standard Level					
B1	Federal Tier 2 Bin 1		HDV2B340	Federal Tier 3 HD Class 2b Transitional Bin 340	
B2	Federal Tier 2 Bin 2		HDV2B250	Federal Tier 3 HD Class 2b Bin 250	
B3	Federal Tier 2 Bin 3		HDV2B200	Federal Tier 3 HD Class 2b Bin 200	
B4	Federal Tier 2 Bin 4		HDV2B170	Federal Tier 3 HD Class 2b Bin 170	
B5	Federal Tier 2 Bin 5		HDV2B150	Federal Tier 3 HD Class 2b Bin 150	
B6	Federal Tier 2 Bin 6		HDV2B0	Federal Tier 3 HD Class 2b Bin 0	
B7	Federal Tier 2 Bin 7		HDV3B630	Federal Tier 3 HD Class 3 Transitional Bin 630	
B8	Federal Tier 2 Bin 8		HDV3B570	Federal Tier 3 HD Class 3 Transitional Bin 570	
B9	Federal Tier 2 Bin 9		HDV3B400	Federal Tier 3 HD Class 3 Bin 400	
B10	Federal Tier 2 Bin 10		HDV3B270	Federal Tier 3 HD Class 3 Bin 270	
B11	Federal Tier 2 Bin 11		HDV3B230	Federal Tier 3 HD Class 3 Bin 230	
HDV1	HDV1 (Federal HD chassis Class 2b GVW 8501-10000)		HDV3B200	Federal Tier 3 HD Class 3 Bin 200	
HDV2	HDV2 (Federal HD chassis Class 3 GVW 10001-14000)		HDV3B0	Federal Tier 3 HD Class 3 Bin 0	
L2	California LEV-II LEV		L4SULEV100	California LEV-IV SULEV100	
L2OP	California LEV-II LEV Optional		L4SULEV125	California LEV-IV SULEV125	
U2	California LEV-II ULEV		L4SULEV15	California LEV-IV SULEV15	
S2	California LEV-II SULEV		L4SULEV150	California LEV-IV SULEV150	
ZEV	California ZEV		L4SULEV170	California LEV-IV SULEV170	
OT	Other		L4SULEV175	California LEV-IV SULEV175	
T1	Federal Tier 1		L4SULEV20	California LEV-IV SULEV20	
PZEV	California PZEV		L4SULEV200	California LEV-IV SULEV200	
L2LEV160	California LEV-II LEV160		L4SULEV230	California LEV-IV SULEV230	
L2ULEV125	California LEV-II ULEV125		L4SULEV25	California LEV-IV SULEV25	
L2SULEV30	California LEV-II SULEV30		L4SULEV30	California LEV-IV SULEV30	
L2LEV395	California LEV-II LEV395		L4SULEV75	California LEV-IV SULEV75	

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50
L2ULEV340	California LEV-II ULEV340	L4SULEV85	California LEV-IV SULEV85
L2LEV630	California LEV-II LEV630	L4ULEV125	California LEV-IV ULEV125
L2ULEV570	California LEV-II ULEV570	L4ULEV200	California LEV-IV ULEV200
L3LEV160	California LEV-III LEV160	L4ULEV250	California LEV-IV ULEV250
L3ULEV125	California LEV-III ULEV125	L4ULEV270	California LEV-IV ULEV270
L3ULEV70	California LEV-III ULEV70	L4ULEV40	California LEV-IV ULEV40
L3ULEV50	California LEV-III ULEV50	L4ULEV400	California LEV-IV ULEV400
L3SULEV30	California LEV-III SULEV30	L4ULEV50	California LEV-IV ULEV50
L3SULEV20	California LEV-III SULEV20	L4ULEV60	California LEV-IV ULEV60
L3LEV395	California LEV-III LEV395	L4ULEV70	California LEV-IV ULEV70
L3ULEV340	California LEV-III ULEV340	T4B170	Federal Tier 4 MDV Bin 170
L3ULEV250	California LEV-III ULEV250	T4B150	Federal Tier 4 MDV Bin 150
L3ULEV200	California LEV-III ULEV200	T4B125	Federal Tier 4 MDV Bin 125
L3SULEV170	California LEV-III SULEV170	T4B100	Federal Tier 4 MDV Bin 100
L3SULEV150	California LEV-III SULEV150	T4B85	Federal Tier 4 MDV Bin 85
L3LEV630	California LEV-III LEV630	T4B75	Federal Tier 4 MDV Bin 75
L3ULEV570	California LEV-III ULEV570	T4B70	Federal Tier 4 Bin 70
L3ULEV400	California LEV-III ULEV400	T4B65	Federal Tier 4 Bin 65
L3ULEV270	California LEV-III ULEV270	T4B60	Federal Tier 4 Bin 60
L3SULEV230	California LEV-III SULEV230	T4B55	Federal Tier 4 Bin 55
L3SULEV200	California LEV-III SULEV200	T4B50	Federal Tier 4 Bin 50
T3B160	Federal Tier 3 Bin 160	T4B45	Federal Tier 4 Bin 45
T3B125	Federal Tier 3 Bin 125	T4B40	Federal Tier 4 Bin 40
T3B110	Federal Tier 3 Transitional Bin 110	T4B35	Federal Tier 4 Bin 35
T3B85	Federal Tier 3 Transitional Bin 85	T4B30	Federal Tier 4 Bin 30
T3SULEV30	Federal Tier 3 Transitional LEV-II SULEV30 Carryover	T4B25	Federal Tier 4 Bin 25
T3B70	Federal Tier 3 Bin 70	T4B20	Federal Tier 4 Bin 20
T3B50	Federal Tier 3 Bin 50	T4B15	Federal Tier 4 Bin 15
T3B30	Federal Tier 3 Bin 30	T4B10	Federal Tier 4 Bin 10
T3B20	Federal Tier 3 Bin 20	T4B5	Federal Tier 4 Bin 5
T3B0	Federal Tier 3 Bin 0	T4B0	Federal Tier 4 Bin 0
HDV2B395	Federal Tier 3 HD Class 2b Transitional Bin 395		
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

Certification Summary Information Report

Test Group	VVVXT02.0S30	Evaporative/Refueling Family	VVVXR0142E50
F	2-Wheel Drive, Front	A	All Wheel Drive
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