

Certification Summary Information Report

Manufacturer	McLaren Automotive Limited	Manufacturer Code	MLN
Test Group	VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22
Certificate Number	VMLNV04.0M22-002	CARB Executive Order #	--
Certificate Issue Date	04/29/2026	Certificate Revision Date	--
Certificate Effective Date	04/29/2026	Conditional Certificate	No
CSI Revision #	--	CSI Submission/Revision Date	04/01/2026 11:01:02 AM
Model Year	2027		

Test Group Information			
CSI Type	New	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	Multipoint/sequential fuel injection	No

Hybrid Indicator	No		
Multiple Fuel Storage	--	Rechargeable Energy Storage System Indicator	No
Multiple Fuel Combustion	--	Off-board Charge Capable Indicator	--
Fuel Cell Indicator	No	EPA Vehicle Class	LDV
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	VMLNGPGNN003	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	05/15/2026	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	VMLNV04.0M22
Test Group OBD Compliance Level	Partial - with deficiencies and penalty	Number of Test Group OBD Deficiencies	3
OBD Deficiencies Comments	Full details available in California ARB approval letter E-26-004. Two deficiencies carried over (engine start-stop monitoring and PCV system monitoring), one new deficiency (J1979-2 implementation).		
Mfr Test Group Comments	--		
Mfr Exhaust / Evap Standards Comments	--		

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Test Group	VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22				
Evaporative/Refueling Family Information							
Evaporative Summary Information Type	New	Submission/Correction Date	04/01/2026 10:07:05 AM				
Integrated ORVR?	Yes	Fuel(s)	Gasoline				
Multiple Fuel Storage	--						
Bladder Fuel Tank?	No						
Fuel Tank Material	Metal	Fuel Tank Material Description	Aluminium				
Fill Pipe Seal Type	Mechanical seal						
Air Intake System Vapor Storage Device?	No	Air Intake System Vapor Storage Device Description	N/A				
Fuel System Vapor Storage Canister?	Yes	Other Vapor Storage	N/A				
Fuel System Vapor Storage Canister(s) Total Working Capacity (grams)	164	Number of Primary Canisters	1				
Number of Bleed Canisters	0	Bleed Canister Total Working Capacity (grams)	0				
Mfr Evaporative/Refueling Family Comments	Vehicle is fitted with a single carbon canister with three chambers and additional scrubber filter. Total canister volume of 3231 ml, with a rated EPA capacity of 163.8g						
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 test performed with fuel system only.						
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				
VMLNR0164M22-L22	50 State	0.02	Leak Family test data waived under CFR §86.1829-15 Section (e) Part (4).				
Models Covered by this Certificate							
Carline Manufacturer	Division	Carline	Certification Region Code(s)	Drive System	Trans - Type	- # of Gears	Trans - Lockup
McLaren Automotive Limited	2 - McLaren	222 - GTS	California + CAA Section 177 states	2-Wheel Drive, Rear	Automated Manual-Selectable (e.g. Automated Manual with paddles)	7	Yes
McLaren Automotive Limited	2 - McLaren	222 - GTS	Federal	2-Wheel Drive, Rear	Automated Manual-Selectable (e.g. Automated Manual with paddles)	7	Yes
Engine Description							
Hybrid Type	--	Hybrid Description	--				
Engine Type	4-Stroke Spark Ignition	Mfr Engine Description	--				
Engine Block Arrangement	V-shaped engine	Mfr Engine Block Arrangement Description	--				
Camless Valvetrain Indicator	No	Oil Viscosity/Classification	0W40				
Number of Cylinders/Rotors	8	Mechanically Variable Compression Ratio Indicator	N				

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Test Group	VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22	
After Treatment Device(s) (ATD)				
ATD Number	ATD Type	ATD Precious Metal	Substrate Material	Substrate Construction
1	Three-way catalyst	Palladium + Rhodium	Metal	Monolith
2	Three-way catalyst	Palladium + Rhodium	Metal	Monolith
3	Three-way catalyst	Palladium + Rhodium	Metal	Monolith
4	Three-way catalyst	Palladium + Rhodium	Metal	Monolith
Mfr After Treatment Device (ATD) Comments	1 starter and 1 secondary catalyst per bank, total 4.			
Direct Ozone Reduction (DOR) Device	Not Equipped			
Mfr Emission Control Device Comments	--			
Engine Configuration Number 1				
Engine Displacement (liters)	4.0	Engine Rated Horsepower	626	
Number of Inlet Valves Per Cylinder	2	Number of Exhaust Valves Per Cylinder	2	
Air Aspiration Method	Turbocharged	Number of Air Aspiration Devices	2	
Air Aspiration Device Configuration	Parallel	Charge Air Cooler Type	Liquid	
Air Aspiration Drive Method(s)	Mechanical			
Cylinder Deactivation	No			
Cylinder Deactivation Description	--			
Variable Valve Timing	Yes			
Variable Valve Timing System Description	Variable Inlet Valve Timing by camshaft rotation offset.			
Variable Valve Lift?	No			
Variable Valve Lift System Description	--			
Number of Knock Sensors	4	Number of Air/Fuel Sensors	4	
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 oxygen	Air/Fuel Sensor # 3 Description	--	
Air/Fuel Sensor # 4 Type	Heated oxygen	Air/Fuel Sensor # 4 Description	--	
Mfr Air/Fuel Sensor Comments	--			
Exhaust Gas Recirculation	No	Cooled Exhaust Gas Recirculation	No	
EGR Type	--	Exhaust Gas Recirculation Description if 'Other'	--	
Closed Loop Air Injection System	No			
Air Injection Type	Secondary Air Injection	Air Injection Type if 'Other'	--	
Mfr Engine Configuration Comments	--			

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Test Group		VMLNV04.0M22				Evaporative/Refueling Family			VMLNR0164M22		
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	
Gasoline	LMLN10060626	LMLN10060628	LMLN10060629	LMLN10060630	LMLN10060627	17.4	228.2	28.2	286.1	--	
SFTP LEV-III Official Test Numbers											
Test Group Fuel	FTP		US06			SC03					
Gasoline	LMLN10060626		LMLN10060628			LMLN10060629					

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Test Group	VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22						
Emission Data Vehicle Information									
Vehicle ID / Configuration	SBM14AAA8HW990014 / 4	Manufacturer Vehicle Configuration Number	0						
Original Test Group Name	KMLNV04.0M14	Original Evaporative/Refueling Family	KMLNR0164M14						
Original Test Vehicle Model Year	2019								
Vehicle Model									
Represented Test Vehicle Make	McLaren	Represented Test Vehicle Model	765LT Spider						
Leak Family Details									
Leak Family Identifier	--	Leak Family Name	--						
Drive Sources and Fuel System Details									
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Drive Source and Fuel#</th> <th style="width: 33%;">Drive Source</th> <th style="width: 33%;">Fuel</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">Combustion Engine</td> <td style="text-align: center;">Gasoline</td> </tr> </tbody> </table>				Drive Source and Fuel#	Drive Source	Fuel	1	Combustion Engine	Gasoline
Drive Source and Fuel#	Drive Source	Fuel							
1	Combustion Engine	Gasoline							
Hybrid Indicator	No								
Multiple Fuel Storage	--	Multiple Fuel Combustion	--						
Fuel Cell Indicator	--	Rechargeable Energy Storage System Indicator	--						
Rechargeable Energy Storage System	--	Rechargeable Energy Storage System, if 'Other'	--						
Off-board charge Capable Indicator	--								
Odometer Correction -- Initial	0	Odometer Correction Factor	1						
Odometer Correction Sign	- = System Miles is equal to (Test odometer reading - Initial system miles) * Correction factor								
Odometer Correction Units	Miles								
Engine Code	40JBAK	Rated Horsepower	755						
Displacement (liters)	3.994								
Air Aspiration Method	Turbocharged	Air Aspiration Method, if 'Other'							
Number of Air Aspiration Devices	2	Air Aspiration Device Configuration	Parallel						
Charge Air Cooler Type	Liquid	Drive Mode While Testing	2-Wheel Drive, Rear						
Shift Indicator Light Usage	Not equipped	Aged Emission Components	4,000 (mi)						
Curb Weight (lbs)	3217	Equivalent Test Weight (pounds)	3625						
GVWR (lbs)	3870	N/V Ratio	30.8						
Axle Ratio	3.73								
Transmission Type	Automatic	# of Transmission Gears	7						
Transmission Lockup	No	Creeper Gear	No						
Dynamometer Coefficients:									
Target Coefficients			Set Coefficients						
Coefficient Category	A (lbf)	B (lbf/mph)	C (lbf/mph**2)						
City/Highway/Evap	41.81	1.0174	0.0121						
	12.43	0.602	0.0121						
			EPA Calculated Total Road Load Horse Power for City/Highway/Evap Coefficients						
			16.4						
Emission Control Device Comments	--								

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Test Group	VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22
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Manufacturer Test Vehicle Comments Config #4 - 765LT Spider PT, 720S Spider Road Load (Evap worse case) - Sport Powertrain Mode

Test #	KMLN10070962	Test Procedure	38 - CA fuel 3-day evap.
Exhaust Test # for this Evap Test	KMLN10070960	Test Fuel Type	47 - CARB LEV3 E10 Premium Gasoline
Test Date	07/27/2021	Fuel	Gasoline
Fuel Batch ID	IJ2303	Fuel Calibration Number	849
Vehicle Class	N/A	DF Type	EPA Assigned
Verify Test Lab ID	Applus IDIADA Group		
E10 Evaporative Test Measurement Method	Calculated (1.08 x FID Total Hydrocarbons)		
Test Start Odometer Reading	9322	Odometer Units	K
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)	0.257	--

Manufacturer Test Comments 3-day diurnal emission result in grams.

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	0.257	0.0021	0.259	0.275	Pass
CA	150,000 miles	California LEV-IV Zero Evap (Option 2)	HC-TOTAL-EQUIV	0.257	0.0021	0.259	0.275	Pass

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Test Group	VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22
Test #	KMLN10080952	Test Procedure	27 - California fuel 2-day evap
Exhaust Test # for this Evap Test	KMLN10080951	Test Fuel Type	47 - CARB LEV3 E10 Premium Gasoline
Test Date	06/03/2022	Fuel	Gasoline
Fuel Batch ID	44869	Fuel Calibration Number	2455
Vehicle Class	N/A	DF Type	EPA Assigned
Verify Test Lab ID	Applus IDIADA Group		
E10 Evaporative Test Measurement Method	Calculated (1.08 x FID Total Hydrocarbons)		
Test Start Odometer Reading	10066	Odometer Units	K
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes	Road Speed Fan Usage	Yes
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)		

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)	0.235	--

Manufacturer Test Comments 2-day diurnal emission result in grams.

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	0.235	0	0.235	0.275	Pass
CA	150,000 miles	California LEV-IV Zero Evap (Option 2)	HC-TOTAL-EQUIV	0.235	0	0.235	0.275	Pass

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Test Group	VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22
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Test #	KMLN10070963	Test Procedure	37 - California Fuel Running Loss
Exhaust Test # for this Evap Test	KMLN10070960	Test Fuel Type	47 - CARB LEV3 E10 Premium Gasoline
Test Date	07/27/2021	Fuel	N/A
Fuel Batch ID	IJ2303	Fuel Calibration Number	849
Vehicle Class	N/A	DF Type	EPA Assigned
Verify Test Lab ID	Applus IDIADA Group		
E10 Evaporative Test Measurement Method	Calculated (1.08 x FID Total Hydrocarbons)		
Test Start Odometer Reading	9322	Odometer Units	K
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)	0.0001	--

Manufacturer Test Comments Emission result in grams per mile.

Certification Summary Information Report

Test Group	VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22
Test #	KMLN10080949	Test Procedure	24 - Federal fuel refueling test (ORVR)
Exhaust Test # for this Evap Test	JMLN10080948	Test Fuel Type	47 - CARB LEV3 E10 Premium Gasoline
Test Date	11/22/2022	Fuel	Gasoline
Fuel Batch ID	44869	Fuel Calibration Number	2455
Vehicle Class	N/A	DF Type	EPA Assigned
Verify Test Lab ID	Applus IDIADA Group		
E10 Evaporative Test Measurement Method	Calculated (1.08 x FID Total Hydrocarbons)		
Test Start Odometer Reading	10501	Odometer Units	K
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes	Road Speed Fan Usage	Yes
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)		

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)	0.03	--

Manufacturer Test Comments ORVR Refuelling emissions result in g/dispensed gal

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	0.03	0.006	0	0.2	Pass
CA	150,000 miles	California LEV-IV Zero Evap (Option 2)	HC-TOTAL-EQUIV	0.03	0.006	0	0.2	Pass

Certification Summary Information Report

Test Group	VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22
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Emission Data Vehicle Information

Vehicle ID / Configuration	SBM14DCA3MW005868 / 0	Manufacturer Vehicle Configuration Number	0
Original Test Group Name	NMLNV04.0M14	Original Evaporative/Refueling Family	NMLNR0164M14
Original Test Vehicle Model Year	2022		

Vehicle Model

Represented Test Vehicle Make	McLaren	Represented Test Vehicle Model	720S Spider
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Leak Family Details

Leak Family Identifier	--	Leak Family Name	--
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Drive Sources and Fuel System Details

Drive Source and Fuel#	Drive Source	Fuel
1	Combustion Engine	Gasoline

Hybrid Indicator	No	Multiple Fuel Combustion	--
Multiple Fuel Storage	--	Rechargeable Energy Storage System Indicator	--
Fuel Cell Indicator	--	Rechargeable Energy Storage System, if 'Other'	--
Rechargeable Energy Storage System	--		
Off-board charge Capable Indicator	--		
Odometer Correction -- Initial	0	Odometer Correction Factor	1
Odometer Correction Sign	- = System Miles is equal to (Test odometer reading - Initial system miles) * Correction factor		
Odometer Correction Units	Miles		
Engine Code	40JBAG	Rated Horsepower	710
Displacement (liters)	3.994		
Air Aspiration Method	Turbocharged	Air Aspiration Method, if 'Other'	
Number of Air Aspiration Devices	2	Air Aspiration Device Configuration	Parallel
Charge Air Cooler Type	Liquid	Drive Mode While Testing	2-Wheel Drive, Rear
Shift Indicator Light Usage	Not equipped	Aged Emission Components	4,000 (mi)
Curb Weight (lbs)	3217	Equivalent Test Weight (pounds)	3625
GVWR (lbs)	3870	N/V Ratio	28.9
Axle Ratio	3.31		
Transmission Type	Automatic	# of Transmission Gears	7
Transmission Lockup	No	Creeper Gear	No

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	47.53	0.8238	0.0151	21.4	0.4729	0.0152	16.9

Emission Control Device Comments --

Certification Summary Information Report

Test Group	VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22
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Manufacturer Test Vehicle Comments Config #0 - 720S Spider - Sport Powertrain Mode

Test #	NMLN10070954	Test Procedure	65 - Evap Canister Bleed Test
Exhaust Test # for this Evap Test	--	Test Fuel Type	47 - CARB LEV3 E10 Premium Gasoline
Test Date	06/30/2021	Fuel	Gasoline
Fuel Batch ID	IJ2303	Fuel Calibration Number	849
Vehicle Class	N/A	DF Type	EPA Assigned
Verify Test Lab ID	Applus IDIADA Group		
E10 Evaporative Test Measurement Method	Calculated (1.08 x FID Total Hydrocarbons)		
Test Start Odometer Reading	0	Odometer Units	K
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	--	Road Speed Fan Usage	--

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value
HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)	0.0077	--

Manufacturer Test Comments Rig test performed. Result in g.

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	0.008	0	0.01	0.02	Pass
CA	150,000 miles	California LEV-IV Zero Evap (Option 2)	HC-TOTAL-EQUIV	0.008	0	0.01	0.02	Pass

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Test Group	VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22						
Emission Data Vehicle Information									
Vehicle ID / Configuration	SBM22GCA0KW990011 / 0	Manufacturer Vehicle Configuration Number	0						
Original Test Group Name	LMLNV04.0M22	Original Evaporative/Refueling Family	LMLNR0164M22						
Original Test Vehicle Model Year	2020								
Vehicle Model									
Represented Test Vehicle Make	McLaren	Represented Test Vehicle Model	GT						
Leak Family Details									
Leak Family Identifier	--	Leak Family Name	--						
Drive Sources and Fuel System Details									
	<table border="1"> <thead> <tr> <th>Drive Source and Fuel#</th> <th>Drive Source</th> <th>Fuel</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Combustion Engine</td> <td>Gasoline</td> </tr> </tbody> </table>			Drive Source and Fuel#	Drive Source	Fuel	1	Combustion Engine	Gasoline
Drive Source and Fuel#	Drive Source	Fuel							
1	Combustion Engine	Gasoline							
Hybrid Indicator	No								
Multiple Fuel Storage	--	Multiple Fuel Combustion	--						
Fuel Cell Indicator	--	Rechargeable Energy Storage System Indicator	--						
Rechargeable Energy Storage System	--	Rechargeable Energy Storage System, if 'Other'	--						
Off-board charge Capable Indicator	--								
Odometer Correction -- Initial	0	Odometer Correction Factor	1						
Odometer Correction Sign	- = System Miles is equal to (Test odometer reading - Initial system miles) * Correction factor								
Odometer Correction Units	Miles								
Engine Code	40JBAN	Rated Horsepower	612						
Displacement (liters)	3.994								
Air Aspiration Method	Turbocharged	Air Aspiration Method, if 'Other'							
Number of Air Aspiration Devices	2	Air Aspiration Device Configuration	Parallel						
Charge Air Cooler Type	Liquid	Drive Mode While Testing	2-Wheel Drive, Rear						
Shift Indicator Light Usage	Not equipped	Aged Emission Components	4,000 (mi)						
Curb Weight (lbs)	3379	Equivalent Test Weight (pounds)	3750						
GVWR (lbs)	3960	N/V Ratio	27.8						
Axle Ratio	3.31								
Transmission Type	Automatic	# of Transmission Gears	7						
Transmission Lockup	No	Creeper Gear	No						

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Test Group	VMLNV04.0M22			Evaporative/Refueling Family			VMLNR0164M22
Dynamometer Coefficients:							
	Target Coefficients			Set Coefficients			EPA Calculated Total Road Load Horse Power for City/Highway/Evap Coefficients
Coefficient Category	A (lbf)	B (lbf/mph)	C (lbf/mph**2)	A (lbf)	B (lbf/mph)	C (lbf/mph**2)	
City/Highway/Evap	47.85	0.8429	0.0132	28.24	0.3618	0.0167	16.4
Cold CO	52.63	0.9272	0.0146	25.97	0.4124	0.0175	N/A
US06	47.85	0.8429	0.0132	28.24	0.3618	0.0167	N/A
Emission Control Device Comments	--						
Manufacturer Test Vehicle Comments	Config #0 - GT - Sport Powertrain Mode						

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Test Group	VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22
Test #	LMLN10060626	Test Procedure	21 - Federal fuel 2-day exhaust (w/can load)
Exhaust Test # for this Evap Test	--	Test Fuel Type	49 - Tier 3 E10 Premium Gasoline (9 RVP @Low Alt.)
Test Date	07/16/2019	Fuel	Gasoline
Fuel Batch ID	HA2903	Fuel Calibration Number	123
Vehicle Class	LDV/Passenger Car	DF Type	EPA Assigned
Verify Test Lab ID	Applus IDIADA Group		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	7386	Odometer Units	K
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
CO2 BAG 1 (Bag 1 Carbon Dioxide)	471.3	--
FE BAG 1 (Bag 1 Fuel Economy)	18.31	18.31
CO2 BAG 2 (Bag 2 Carbon Dioxide)	482.2	--
FE BAG 2 (Bag 2 Fuel Economy)	17.95	17.95
CO2 BAG 3 (Bag 3 Carbon Dioxide)	426.5	--
FE BAG 3 (Bag 3 Fuel Economy)	20.29	20.29
METHANE (CH4 - Methane)	0.004282	--
CO (Carbon Monoxide)	0.163172	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	3.197742	--
DT-EER (Drive Trace Energy Economy Rating)	0.655886	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	4.561324	--
HCHO (Formaldehyde)	0.000124	--
MFR FE (Manufacturer Fuel Economy)	18.61	18.61
NOX (Nitrogen Oxide)	0.011585	--
N2O (Nitrous Oxide)	0.005852	--
HC-NM (Non-methane Hydrocarbon)	0.015352	--
NMOG (Non-methane organic gases)	0.016906	--
HC-NM+NOX (SFTP Non-methane Hydrocarbon + Nitrogen Oxides for US06 or SC03)	0.026937	--
HC-TOTAL (Total Hydrocarbon)	0.019634	--

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Test Group	VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22									
	Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE									
	Carbon-Related Exhaust Emissions	0	999									
	Test Result Name	Unrounded Test Result	Verify Calculated CO2									
	Carbon dioxide	464.6	--									
Manufacturer Test Comments	FE in miles per gallon. All emissions results in grams per mile. Config #0: Sport Powertrain Mode.											
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 50	CO	0.16	--	--	--	0.16	--	0.3	1.7	Pass
Fed	150,000 miles	Federal Tier 3 Bin 50	CO-COMP	0.26	--	--	--	0.16	--	0.3	4.2	Pass
Fed	150,000 miles	Federal Tier 3 Bin 50	CREE	999	--	--	--	0	--	999	--	--
Fed	150,000 miles	Federal Tier 3 Bin 50	HCHO	0.0001	--	--	--	0.0002	--	0	0.004	Pass
Fed	150,000 miles	Federal Tier 3 Bin 50	METHANE	0.0043	--	--	--	0.00265	--	0.007	0.030	Pass
Fed	150,000 miles	Federal Tier 3 Bin 50	N2O	0.006	--	--	--	0.0011	--	0.01	0.01	Pass
Fed	150,000 miles	Federal Tier 3 Bin 50	NMOG	0.0169	--	1.1	--	0.0062	--	0.023	999.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 50	NMOG+NOX	0.0285	--	--	--	--	--	0.04	0.05	Pass
Fed	150,000 miles	Federal Tier 3 Bin 50	NMOG+NOX-COMP	0.0358	--	--	--	0	--	0.036	0.040	Pass
Fed	150,000 miles	Federal Tier 3 Bin 50	NOX	0.0116	--	--	--	0.0047	--	0.016	999.999	Pass
CA	150,000 miles	California LEV-IV ULEV50	CO	0.16	--	--	--	0.16	--	0.3	1.7	Pass
CA	150,000 miles	California LEV-IV ULEV50	HCHO	0.0001	--	--	--	0.0002	--	0	0.004	Pass
CA	150,000 miles	California LEV-IV ULEV50	METHANE	0.0043	--	--	--	0.00265	--	0.007	0.030	Pass
CA	150,000 miles	California LEV-IV ULEV50	N2O	0.0059	--	--	--	0.0011	--	0.007	0.010	Pass
CA	150,000 miles	California LEV-IV ULEV50	NMOG	0.01691	--	1.1	--	0.0062	--	0.0231	999.9999	Pass
CA	150,000 miles	California LEV-IV ULEV50	NMOG+NOX	0.02849	--	--	--	--	--	0.039	0.050	Pass
CA	150,000 miles	California LEV-IV ULEV50	NOX	0.01158	--	--	--	0.0047	--	0.0163	999.9999	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	VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22
Test #	LMLN10060630	Test Procedure	11 - Cold CO
Exhaust Test # for this Evap Test	--	Test Fuel Type	29 - Cold CO E10 Premium Gasoline (Tier 3)
Test Date	05/29/2019	Fuel	Gasoline
Fuel Batch ID	GB1203	Fuel Calibration Number	9253
Vehicle Class	LDV/Passenger Car	DF Type	EPA Assigned
Verify Test Lab ID	Applus IDIADA Group		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	6874	Odometer Units	K
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
CO2 BAG 1 (Bag 1 Carbon Dioxide)	737.1	--
FE BAG 1 (Bag 1 Fuel Economy)	11.76	11.76
CO2 BAG 2 (Bag 2 Carbon Dioxide)	616.9	--
FE BAG 2 (Bag 2 Fuel Economy)	14.13	14.13
CO2 BAG 3 (Bag 3 Carbon Dioxide)	453.3	--
FE BAG 3 (Bag 3 Fuel Economy)	19.23	19.23
METHANE (CH4 - Methane)	0.011111	--
CO (Carbon Monoxide)	0.418385	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	-0.311861	--
DT-EER (Drive Trace Energy Economy Rating)	-0.386023	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	-1.023346	--
MFR FE (Manufacturer Fuel Economy)	14.59	14.59
NOX (Nitrogen Oxide)	0.03388	--
HC-NM (Non-methane Hydrocarbon)	0.09215	--
NMOG (Non-methane organic gases)	0.101476	--
HC-NM+NOX (SFTP Non-methane Hydrocarbon + Nitrogen Oxides for US06 or SC03)	0.12603	--
HC-TOTAL (Total Hydrocarbon)	0.103261	--

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	596.85	--

Certification Summary Information Report

Test Group		VMLNV04.0M22			Evaporative/Refueling Family					VMLNR0164M22		
Manufacturer Test Comments		FE in miles per gallon. All emissions results in grams per mile. Config #0: Sport Powertrain Mode.										
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 50	CO	0.42	--	--	--	0.16	--	0.6	10.0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 50	HC-NM	0.09	--	--	--	0.0062	--	0.1	0.3	Pass
CA	150,000 miles	California LEV-IV ULEV50	CO	0.42	--	--	--	0.16	--	0.6	10.0	Pass

Certification Summary Information Report

Test Group	VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22
Test #	LMLN10060631	Test Procedure	51 - CA fuel 50 Deg(F) exhaust test
Exhaust Test # for this Evap Test	--	Test Fuel Type	23 - CARB Phase II Gasoline
Test Date	05/31/2019	Fuel	Gasoline
Fuel Batch ID	FA1103	Fuel Calibration Number	4563
Vehicle Class	LDV/Passenger Car	DF Type	EPA Assigned
Verify Test Lab ID	Applus IDIADA Group		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	6945	Odometer Units	K
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
CO2 BAG 1 (Bag 1 Carbon Dioxide)	532.7	--
FE BAG 1 (Bag 1 Fuel Economy)	16.4	16.4
CO2 BAG 2 (Bag 2 Carbon Dioxide)	462.1	--
FE BAG 2 (Bag 2 Fuel Economy)	18.96	18.96
CO2 BAG 3 (Bag 3 Carbon Dioxide)	456	--
FE BAG 3 (Bag 3 Fuel Economy)	19.2	19.2
METHANE (CH4 - Methane)	0.006078	--
CO (Carbon Monoxide)	0.206324	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	-0.021955	--
DT-EER (Drive Trace Energy Economy Rating)	-0.067537	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	-0.15807	--
HCHO (Formaldehyde)	0.000181	--
MFR FE (Manufacturer Fuel Economy)	18.43	18.43
NOX (Nitrogen Oxide)	0.01436	--
HC-NM (Non-methane Hydrocarbon)	0.016719	--
NMOG (Non-methane organic gases)	0.018411	--
HC-NM+NOX (SFTP Non-methane Hydrocarbon + Nitrogen Oxides for US06 or SC03)	0.031079	--
HC-TOTAL (Total Hydrocarbon)	0.022797	--

Certification Summary Information Report

Test Group	VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22
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Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	475.051	--

Manufacturer Test Comments FE in miles per gallon. All emissions results in grams per mile. Config #0: Sport Powertrain Mode.

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-IV ULEV50	CO	0.21	--	--	--	0	--	0.2	1.7	Pass
CA	4,000 miles	California LEV-IV ULEV50	HCHO	0.0002	--	--	--	0	--	0	0.016	Pass
CA	4,000 miles	California LEV-IV ULEV50	NMOG	0.01841	--	1.1	--	0	--	0.0184	999.9999	Pass
CA	4,000 miles	California LEV-IV ULEV50	NMOG+NOX	0.03277	--	--	--	--	--	0.033	0.100	Pass
CA	4,000 miles	California LEV-IV ULEV50	NOX	0.01436	--	--	--	0	--	0.0144	999.9999	Pass

Certification Summary Information Report

Test Group	VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22
Test #	LMLN10060627	Test Procedure	3 - HWFE
Exhaust Test # for this Evap Test	--	Test Fuel Type	49 - Tier 3 E10 Premium Gasoline (9 RVP @Low Alt.)
Test Date	05/23/2019	Fuel	Gasoline
Fuel Batch ID	HA2903	Fuel Calibration Number	123
Vehicle Class	LDV/Passenger Car	DF Type	EPA Assigned
Verify Test Lab ID	Applus IDIADA Group		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	6722	Odometer Units	K
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
METHANE (CH4 - Methane)	0.002	--
CO (Carbon Monoxide)	0.008	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	2.373524	--
DT-EER (Drive Trace Energy Economy Rating)	0.433682	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	2.170167	--
MFR FE (Manufacturer Fuel Economy)	28.77	28.77
NOX (Nitrogen Oxide)	0.009	--
HC-NM (Non-methane Hydrocarbon)	0.002	--
NMOG (Non-methane organic gases)	0.00206	--
HC-NM+NOX (SFTP Non-methane Hydrocarbon + Nitrogen Oxides for US06 or SC03)	0.011	--
HC-TOTAL (Total Hydrocarbon)	0.004	--

Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE
Carbon-Related Exhaust Emissions	300.865	999

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	300.84	--

Manufacturer Test Comments

FE in miles per gallon. All emissions results in grams per mile. Config #0: Sport Powertrain Mode.

Certification Summary Information Report

Test Group		VMLNV04.0M22				Evaporative/Refueling Family				VMLNR0164M22		
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 50	CREE	999	--	--	--	0	--	999	--	--
Fed	150,000 miles	Federal Tier 3 Bin 50	NMOG	0.0021	--	1.1	--	0.0062	--	0.008	999.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 50	NMOG+NOX	0.0111	--	--	--	--	--	0.022	0.050	Pass
Fed	150,000 miles	Federal Tier 3 Bin 50	NOX	0.009	--	--	--	0.0047	--	0.014	999.999	Pass
CA	150,000 miles	California LEV-IV ULEV50	NMOG	0.00206	--	1.1	--	0.0062	--	0.0083	999.9999	Pass
CA	150,000 miles	California LEV-IV ULEV50	NMOG+NOX	0.01106	--	--	--	--	--	0.022	0.050	Pass
CA	150,000 miles	California LEV-IV ULEV50	NOX	0.009	--	--	--	0.0047	--	0.0137	999.9999	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	VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22
Test #	LMLN10060628	Test Procedure	90 - US06
Exhaust Test # for this Evap Test	--	Test Fuel Type	49 - Tier 3 E10 Premium Gasoline (9 RVP @Low Alt.)
Test Date	06/07/2019	Fuel	Gasoline
Fuel Batch ID	HA2903	Fuel Calibration Number	123
Vehicle Class	LDV/Passenger Car	DF Type	EPA Assigned
Verify Test Lab ID	Applus IDIADA Group		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	7103	Odometer Units	K
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
CO2 BAG 1 (Bag 1 Carbon Dioxide)	622.2	--
FE BAG 1 (Bag 1 Fuel Economy)	13.9	13.9
CO2 BAG 2 (Bag 2 Carbon Dioxide)	374.6	--
FE BAG 2 (Bag 2 Fuel Economy)	23.1	23.1
METHANE (CH4 - Methane)	0.005	--
CO (Carbon Monoxide)	0.049	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	11.512261	--
DT-EER (Drive Trace Energy Economy Rating)	3.197384	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	20.051209	--
MFR FE (Manufacturer Fuel Economy)	20.16	20.16
NOX (Nitrogen Oxide)	0.008	--
HC-NM (Non-methane Hydrocarbon)	0.013	--
NMOG (Non-methane organic gases)	0.01339	--
HC-NM+NOX (SFTP Non-methane Hydrocarbon + Nitrogen Oxides for US06 or SC03)	0.021	--
HC-TOTAL (Total Hydrocarbon)	0.018	--

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	429.1	--

Manufacturer Test Comments

FE in miles per gallon. All emissions results in grams per mile. Config #0: Sport Powertrain Mode.

Certification Summary Information Report

Test Group		VMLNV04.0M22				Evaporative/Refueling Family				VMLNR0164M22		
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 50	CO	0.049	--	--	--	0.16	--	0.209	999.9999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 50	NMOG	0.01339	--	1.1	--	0.0062	--	0.0196	999.9999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 50	NOX	0.008	--	--	--	0.0047	--	0.0127	999.9999	Pass
CA	150,000 miles	California LEV-IV ULEV50	CO	0.05	--	--	--	0.16	--	0.2	9.6	Pass
CA	150,000 miles	California LEV-IV ULEV50	NMOG	0.01339	--	1.1	--	0.0062	--	0.0196	999.9999	Pass
CA	150,000 miles	California LEV-IV ULEV50	NMOG+NOX	0.02139	--	--	--	--	--	0.032	0.050	Pass
CA	150,000 miles	California LEV-IV ULEV50	NOX	0.008	--	--	--	0.0047	--	0.0127	999.9999	Pass

Certification Summary Information Report

Test Group	VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22
Test #	LMLN10060629	Test Procedure	95 - SC03
Exhaust Test # for this Evap Test	--	Test Fuel Type	49 - Tier 3 E10 Premium Gasoline (9 RVP @Low Alt.)
Test Date	05/31/2019	Fuel	Gasoline
Fuel Batch ID	HA2903	Fuel Calibration Number	123
Vehicle Class	LDV/Passenger Car	DF Type	EPA Assigned
Verify Test Lab ID	Applus IDIADA Group		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	6963	Odometer Units	K
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
METHANE (CH4 - Methane)	0.005	--
CO (Carbon Monoxide)	0.089	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	-1.464526	--
DT-EER (Drive Trace Energy Economy Rating)	-0.27336	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	-1.312696	--
MFR FE (Manufacturer Fuel Economy)	13.04	13.04
NOX (Nitrogen Oxide)	0.018	--
HC-NM (Non-methane Hydrocarbon)	0.006	--
NMOG (Non-methane organic gases)	0.00618	--
HC-NM+NOX (SFTP Non-methane Hydrocarbon + Nitrogen Oxides for US06 or SC03)	0.024	--
HC-TOTAL (Total Hydrocarbon)	0.011	--

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	663.35	--

Manufacturer Test Comments

FE in miles per gallon. All emissions results in grams per mile. Config #0: Sport Powertrain Mode.

Certification Summary Information Report

Test Group		VMLNV04.0M22				Evaporative/Refueling Family				VMLNR0164M22		
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 50	CO	0.089	--	--	--	0.16	--	0.249	999.9999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 50	NMOG	0.00618	--	1.1	--	0.0062	--	0.0124	999.9999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 50	NOX	0.018	--	--	--	0.0047	--	0.0227	999.9999	Pass
CA	150,000 miles	California LEV-IV ULEV50	CO	0.09	--	--	--	0.16	--	0.2	1.7	Pass
CA	150,000 miles	California LEV-IV ULEV50	NMOG	0.00618	--	1.1	--	0.0062	--	0.0124	999.9999	Pass
CA	150,000 miles	California LEV-IV ULEV50	NMOG+NOX	0.02418	--	--	--	--	--	0.035	0.050	Pass
CA	150,000 miles	California LEV-IV ULEV50	NOX	0.018	--	--	--	0.0047	--	0.0227	999.9999	Pass

Certification Summary Information Report

Test Group	VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22
Fuel Properties			
Fuel Batch ID	HA2903	Fuel Calibration Number	123
Test Fuel Type	49 - Tier 3 E10 Premium Gasoline (9 RVP @Low Alt.)	Fuel Batch Calibration Date	02/01/2019
Fuel Batch Calibration Effective Date	03/27/2019	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	GB1203	Fuel Calibration Number	9253
Test Fuel Type	29 - Cold CO E10 Premium Gasoline (Tier 3)	Fuel Batch Calibration Date	02/23/2018
Fuel Batch Calibration Effective Date	06/26/2018	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 (%)	9.7	Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)	17822
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	FA1103	Fuel Calibration Number	4563
Test Fuel Type	23 - CARB Phase II Gasoline	Fuel Batch Calibration Date	04/24/2018
Fuel Batch Calibration Effective Date	04/24/2018	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	0.742
Fuel Ethanol Volume Percent (%)	--	Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)	18132
Fuel Net Heat of Combustion (E10) (MJ/kg)	--	Fuel Carbon Mass Fraction (E10)	--
Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0)	0.844	Weight Fraction CO2	--
Fuel Batch ID	IJ2303	Fuel Calibration Number	849
Test Fuel Type	47 - CARB LEV3 E10 Premium Gasoline	Fuel Batch Calibration Date	10/21/2020
Fuel Batch Calibration Effective Date	11/23/2020	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	VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22
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)	0.836	Weight Fraction CO2	--
Fuel Batch ID	44869	Fuel Calibration Number	2455
Test Fuel Type	47 - CARB LEV3 E10 Premium Gasoline	Fuel Batch Calibration Date	08/31/2021
Fuel Batch Calibration Effective Date	08/08/2022	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)	17829
Fuel Net Heat of Combustion (E10) (MJ/kg)	--	Fuel Carbon Mass Fraction (E10)	--
Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0)	0.835	Weight Fraction CO2	--

Certification Summary Information Report

Test Group	VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22						
Consolidated List of Standards									
Exhaust Standards									
Cert Region	Federal	Cert/In-Use Code	Cert						
Vehicle Class	LDV/Passenger Car	Standard Level	Federal Tier 3 Bin 50						
Fuel	Gasoline	Test Procedure	Federal fuel 2-day exhaust (w/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	--	--	--	--	--	--	0.16	1.7
150,000 miles	CO-COMP	--	--	--	--	--	--	0.16	4.2
150,000 miles	CREE	--	--	--	--	--	--	0	999.999
150,000 miles	HCHO	--	--	--	--	--	--	0.0002	0.004
150,000 miles	METHANE	--	--	--	--	--	--	0.00265	0.030
150,000 miles	N2O	--	--	--	--	--	--	0.0011	0.01
150,000 miles	NMOG	--	--	1.1	--	--	--	0.0062	999.999
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0.05
150,000 miles	NMOG+NOX-COMP	--	--	--	--	--	--	0	0.040
150,000 miles	NOX	--	--	--	--	--	--	0.0047	999.999
Cert Region				Federal	Cert/In-Use Code		Cert		
Vehicle Class				LDV/Passenger Car	Standard Level		Federal Tier 3 Bin 50		
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	--	--	--	--	--	--	0.16	999.9999
150,000 miles	NMOG	--	--	1.1	--	--	--	0.0062	999.9999
150,000 miles	NOX	--	--	--	--	--	--	0.0047	999.9999

Certification Summary Information Report

Test Group		VMLNV04.0M22			Evaporative/Refueling Family			VMLNR0164M22		
Cert Region		Federal			Cert/In-Use Code			Cert		
Vehicle Class		LDV/Passenger Car			Standard Level			Federal Tier 3 Bin 50		
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	
150,000 miles	CREE	--	--	--	--	--	--	0	999.999	
150,000 miles	NMOG	--	--	1.1	--	--	--	0.0062	999.999	
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0.050	
150,000 miles	NOX	--	--	--	--	--	--	0.0047	999.999	
Cert Region		California + CAA Section 177 states			Cert/In-Use Code			Cert		
Vehicle Class		LDV/Passenger Car			Standard Level			California LEV-IV ULEV50		
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	
150,000 miles	CO	--	--	--	--	--	--	0.16	10.0	
Cert Region		Federal			Cert/In-Use Code			Cert		
Vehicle Class		LDV/Passenger Car			Standard Level			Federal Tier 3 Bin 50		
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	
150,000 miles	CO	--	--	--	--	--	--	0.16	10.0	
150,000 miles	HC-NM	--	--	--	--	--	--	0.0062	0.3	
Cert Region		California + CAA Section 177 states			Cert/In-Use Code			Cert		
Vehicle Class		LDV/Passenger Car			Standard Level			California LEV-IV ULEV50		
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	
150,000 miles	NMOG	--	--	1.1	--	--	--	0.0062	999.9999	
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0.050	
150,000 miles	NOX	--	--	--	--	--	--	0.0047	999.9999	

Certification Summary Information Report

Test Group		VMLNV04.0M22			Evaporative/Refueling Family			VMLNR0164M22		
Cert Region		California + CAA Section 177 states			Cert/In-Use Code			Cert		
Vehicle Class		LDV/Passenger Car			Standard Level			California LEV-IV ULEV50		
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	--	--	--	--	--	--	0.16	1.7	
150,000 miles	NMOG	--	--	1.1	--	--	--	0.0062	999.9999	
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0.050	
150,000 miles	NOX	--	--	--	--	--	--	0.0047	999.9999	
Cert Region		California + CAA Section 177 states			Cert/In-Use Code			Cert		
Vehicle Class		LDV/Passenger Car			Standard Level			California LEV-IV ULEV50		
Fuel		Gasoline			Test Procedure			Federal fuel 2-day exhaust (w/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	--	--	--	--	--	--	0.16	1.7	
150,000 miles	HCHO	--	--	--	--	--	--	0.0002	0.004	
150,000 miles	METHANE	--	--	--	--	--	--	0.00265	0.030	
150,000 miles	N2O	--	--	--	--	--	--	0.0011	0.010	
150,000 miles	NMOG	--	--	1.1	--	--	--	0.0062	999.9999	
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0.050	
150,000 miles	NOX	--	--	--	--	--	--	0.0047	999.9999	
Cert Region		California + CAA Section 177 states			Cert/In-Use Code			Cert		
Vehicle Class		LDV/Passenger Car			Standard Level			California LEV-IV ULEV50		
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	1.7	
4,000 miles	HCHO	--	--	--	--	--	--	0	0.016	
4,000 miles	NMOG	--	--	1.1	--	--	--	0	999.9999	
4,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0.100	
4,000 miles	NOX	--	--	--	--	--	--	0	999.9999	

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Test Group		VMLNV04.0M22			Evaporative/Refueling Family			VMLNR0164M22		
Cert Region		California + CAA Section 177 states			Cert/In-Use Code			Cert		
Vehicle Class		LDV/Passenger Car			Standard Level			California LEV-IV ULEV50		
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	--	--	--	--	--	--	0.16	9.6	
150,000 miles	NMOG	--	--	1.1	--	--	--	0.0062	999.9999	
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0.050	
150,000 miles	NOX	--	--	--	--	--	--	0.0047	999.9999	

Cert Region		Federal			Cert/In-Use Code			Cert		
Vehicle Class		LDV/Passenger Car			Standard Level			Federal Tier 3 Bin 50		
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	--	--	--	--	--	--	0.16	999.9999	
150,000 miles	NMOG	--	--	1.1	--	--	--	0.0062	999.9999	
150,000 miles	NOX	--	--	--	--	--	--	0.0047	999.9999	

Evaporative/Refueling Standards

Evaporative/Refueling Family		VMLNR0164M22			Cert Region			Federal		
Cert/In-Use Code		Cert			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	--	0.275	0.0021					

Evaporative/Refueling Family		VMLNR0164M22			Cert Region			California + CAA Section 177 states		
Cert/In-Use Code		Cert			Standard Level			California LEV-IV Zero Evap (Option 2)		
Test Procedure		Spitback								
Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF					
Gasoline	150,000 miles	SPITBACK	--	1.0	0					

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Test Group	VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22		
Evaporative/Refueling Family	VMLNR0164M22	Cert Region	California + CAA Section 177 states California LEV-IV Zero Evap (Option 2)		
Cert/In-Use Code	Cert	Standard Level			
Test Procedure	Leak Test - Port Near Canister				
Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF
Gasoline	150,000 miles	LEAK-DIA	--	0.02	0
Evaporative/Refueling Family	VMLNR0164M22	Cert Region	California + CAA Section 177 states California LEV-IV Zero Evap (Option 2)		
Cert/In-Use Code	Cert	Standard Level			
Test Procedure	California Fuel Running Loss				
Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF
Gasoline	150,000 miles	HC	--	0.05	0
Evaporative/Refueling Family	VMLNR0164M22	Cert Region	Federal Federal Tier 3 Evap		
Cert/In-Use Code	Cert	Standard Level			
Test Procedure	Leak Test - Port Near Canister				
Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF
Gasoline	150,000 miles	LEAK-DIA	--	0.02	0
Evaporative/Refueling Family	VMLNR0164M22	Cert Region	Federal Federal Tier 3 Evap		
Cert/In-Use Code	Cert	Standard Level			
Test Procedure	California Fuel Running Loss				
Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF
Gasoline	150,000 miles	HC	--	0.05	0
Evaporative/Refueling Family	VMLNR0164M22	Cert Region	California + CAA Section 177 states California LEV-IV Zero Evap (Option 2)		
Cert/In-Use Code	Cert	Standard Level			
Test Procedure	Federal fuel refueling test (ORVR)				
Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF
Gasoline	150,000 miles	HC-TOTAL-EQUIV	--	0.2	0.006

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Test Group	VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22		
Evaporative/Refueling Family	VMLNR0164M22	Cert Region	Federal		
Cert/In-Use Code	Cert	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-TOTAL-EQUIV	--	0.2	0.006
Evaporative/Refueling Family	VMLNR0164M22	Cert Region	California + CAA Section 177 states California LEV-IV Zero Evap (Option 2)		
Cert/In-Use Code	Cert	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	--	0.275	0.0021
Evaporative/Refueling Family	VMLNR0164M22	Cert Region	Federal		
Cert/In-Use Code	Cert	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	--	0.275	0
Evaporative/Refueling Family	VMLNR0164M22	Cert Region	Federal		
Cert/In-Use Code	Cert	Standard Level	Federal Tier 3 Evap		
Test Procedure	Spitback				
Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF
Gasoline	150,000 miles	SPITBACK	--	1.0	0
Evaporative/Refueling Family	VMLNR0164M22	Cert Region	Federal		
Cert/In-Use Code	Cert	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-EQUIV	--	0.02	0

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Test Group	VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22		
Evaporative/Refueling Family	VMLNR0164M22	Cert Region	California + CAA Section 177 states California LEV-IV Zero Evap (Option 2)		
Cert/In-Use Code	Cert	Standard Level			
Test Procedure	Evap Canister Bleed Test				
Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF
Gasoline	150,000 miles	HC-TOTAL-EQUIV	--	0.02	0
Evaporative/Refueling Family	VMLNR0164M22	Cert Region	California + CAA Section 177 states California LEV-IV Zero Evap (Option 2)		
Cert/In-Use Code	Cert	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	--	0.275	0

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Test Group	VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22
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

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Test Group		VMLNV04.0M22	Evaporative/Refueling Family		VMLNR0164M22
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	

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Test Group		VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22
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	

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Test Group	VMLNV04.0M22	Evaporative/Refueling Family	VMLNR0164M22
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