



Application for Certification - Part 1

Test Group (CBI)

- **Model Year:** 2027
- **Manufacturer Name:** Kia Corporation
- **Test Group:** VKMXV02.5DR3
- **Test Group Description:** 2.5 Liter / I4 GDPI / Otto-cycle
- **Durability Group:** VKMXGPGNNDNR3
- **Durability Group Description:** Monolith, WU-TWC + GPF + TWC
- **Vehicle Class:** LDV
- **Applicable Standards:** FED: Interim Tier4 BIN30 / Tier4 Evap.
CAL: LEV-IV SULEV30 / LEV-IV Evap.
- **Vehicle Tested:** EDV - DL3U7H5GA110A/0 (Exhaust)
EDV - DN8U0H5GA023F/0 (Evap)
FEDV - DL3U7H5GA112F/0
FEDV - DL3U7H5GA108F/0
- **Carlines Covered by Certificate:** K5, K5 AWD
- **EPA Response Requested by:** May 15, 2026
- **For Questions, Contact:** Stephanie Wright
Tel: 734-273-1904
E-mail: swright@hatci.com

TABLE OF CONTENTS

Section	Contents	Application	
		Common	Test Group
01	Correspondence and Communications	x	
02	Durability Group Description		x
	02.01 List of Vehicles in Durability Groups	x	
	02.02 Catalyst Information		x
03	Evaporative/Refueling Family Description		x
	03.01 Evaporative/Refueling General Description	x	
	03.02 List of Vehicles in Evaporative Families	x	
04	Durability Test Procedure Description		
	04.01 Exhaust Durability Test Data		x
	04.02 Evaporative/ORVR Durability Test Data		x
	04.03 Exhaust Durability Test Procedure	x	
	04.04 Evaporative Durability Test Procedure	x	
05	Test Group Description		x
06	Test Vehicle Description		x
07	Test Results		x
08	Emission Compliance Statement	x	
09	OBD System Description		x
	09.01 CARB Approval Letter		x
10	Description of Alternate-Fueled Vehicles		x
11	AECD Descriptions		x
12	Description of Vehicles Covered by Certificate and Test Parameters		
	12.01 Vehicle Parameters		x
	12.02 Test Parameters	x	x
13	Projected Sales	x	
14	Request for Certification		x
15	Other Information		
	15.01 Certification Fee Filing Form		x
	15.02 Vehicle Emission Control Information Label		x
	15.03 ORVR Safety Statement		x
	15.04 New Technology System Description	x	
	15.05 Engine Oil Information	x	
16	California ARB Information	x	x
17	Service of Process	x	
18	Attachment		x

01.00 Correspondence and Communications

Please refer to Common Section 01.00.

For questions, call Stephanie Wright (734-273-1904).

02.00 Durability Group Description

1. Durability Group Name : VKMXGPGNNDR3
2. Combustion Cycle : Otto cycle / four stroke
3. Engine Type : Piston / water cooled
4. Fuel Used : Gasoline
5. Basic Fuel Metering System : Direct & Port Injection
6. Catalyst Construction and location : See Section 02.02
7. Precious Metals in Catalyst : See Section 02.02
8. Precious Metal Loading for all
Catalysts in the Durability Group : See Section 02.02
9. Range of Catalyst Grouping Statistics : See Section 02.02
10. Type of particulate filter : Catalyzed

02.01 List of Vehicles in Durability Groups

Please refer to Common Section 02.01.

03.00 Evaporative/Refueling Family Description

03.00.01 Evaporative/Refueling Family Name: VKMXR0131DRG (C/O 20MY Sonata 2.5)

03.00.01.01 Evaporative/Refueling Family Parameters

1. Type of vapor storage device: Canister (Number of canister: 1EA) , Air cleaner (1EA)

2. Basic canister design

Evap. code	Absorption flow rate (g/hr)	Nominal working capacity (g)	Size (cc)	Material	Medium	Nominal fuel tank capacity (gal)
131DRG	15	131	2300	Plastic	Activated Carbon	15.9

3. Fuel system: Returnless fuel system

4. Type of refueling emission control system: Integrated type

5. Fillpipe seal mechanism: Liquid seal type

6. Vapor control system or method of vapor line to the canister:

- Fill limit vent valve (ORVR vent valve)
- Overfill limiter (2 way valve)
- Canister close valve

7. Purge control system

- Type of valve: Duty
- Purge control strategy: Controlled by ECU
- High load purge system: No
- Active purge system: No

8. Vapor hose material: Rubber

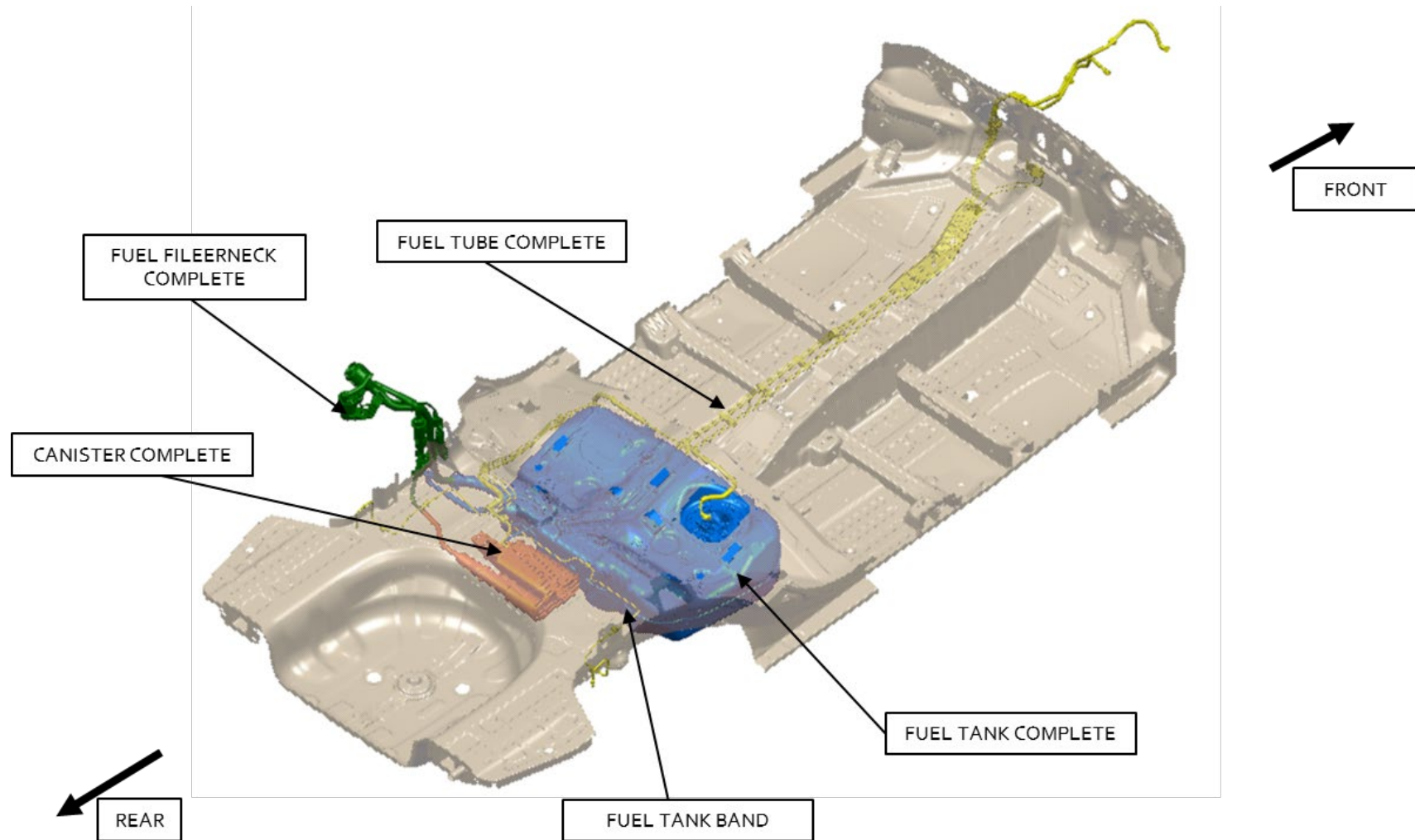
9. Fuel tank material: Plastic

10. HC trap

- Media: Paper containing activated carbon
- Working capacity: 0.8g

03.00.01.02

Evaporative/Refueling Schematic

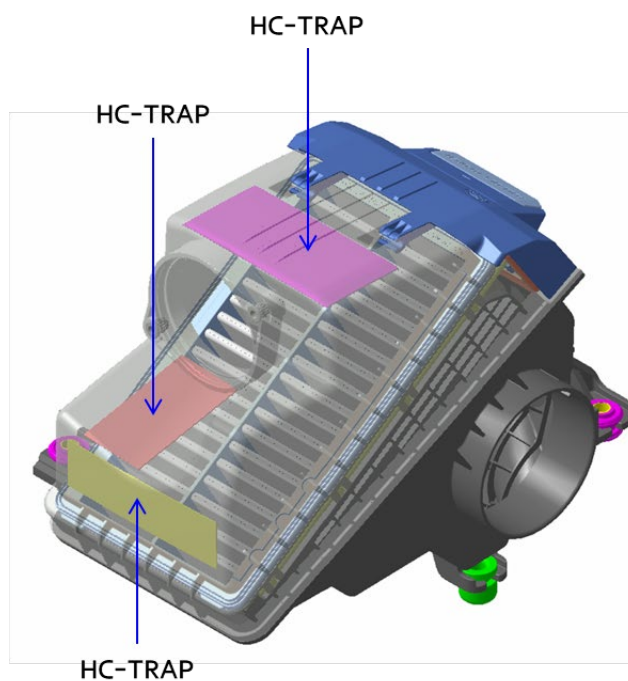
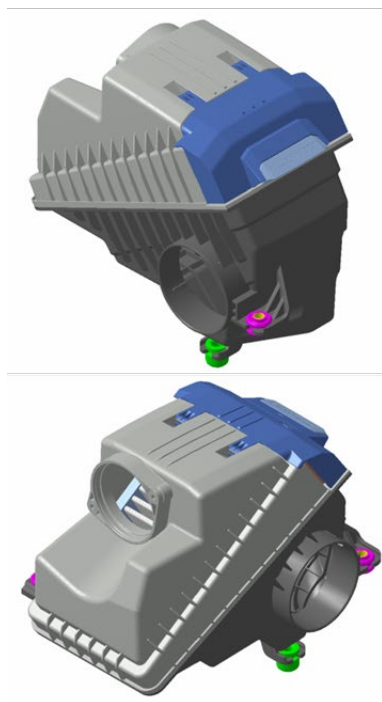


VKMXV02.5DR3 - Kia K5 2.5L GDPI (GPF) - Part 1

Issued : 04-02-2026

Revised:

03.00.01.03 HC-TRAP Schematic



VKMXV02.5DR3 - Kia K5 2.5L GDPI (GPF) - Part 1
Issued : 04-02-2026
Revised:

03.01 Evaporative/Refueling General Description

Please refer to Common Section 03.01.

03.02 List of Vehicles in Evaporative Families

Please refer to Common Section 03.02.

04.03 Exhaust Durability Test Procedure

Please refer to Common Section 04.03 for details.

04.04 Evaporative Durability Test Procedure

Please refer to Common Section 04.04.

05.00 Test Group Description

Test group name	:	VKMXV02.5DR3
Engine displacement (L) covered	:	2.5L
Arrangement/number of cylinders	:	I4
Vehicle class(s) covered	:	LDV
Sales location/emission standard	:	FED: Interim Tier-4 Bin 30 CAL: LEV-IV SULEV 30 See CSI report for emission standard levels

VKMXV02.5DR3 - Kia K5 2.5L GDPI (GPF) - Part 1
Issued : 04-02-2026
Revised:

06.00 Test Vehicle Description

1. Exhaust Durability Data Vehicle

A screenshot of KMHL64JA5TA534809 is included, and KMHL64JA6TA534799 has the same specifications as KMHL64JA5TA534809.

Verify Processing Report

Page 1 of 3

Verify Processing Report

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

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

Test Vehicle Information Submission

Test Vehicle Information Details

Information Process Code : N
EPA Manufacturer Code : HYX
Vehicle Identification Text : KMHL64JA5TA534809
Vehicle Configuration Number : 0

Vehicle Configuration Details

Vehicle Description Details

Manufacturer Vehicle Configuration Number : 0
Test Group Name : VHYXV02.5ER3
Evaporative Refueling Family Name : VHYXR0131ERG
Leak Family Identifier : DN1
Leak Family Name : VHYXR0131ERG-DN1
Model Year : 2027
Actual Test Vehicle Make Text : Hyundai
Actual Test Vehicle Model Text : Sonata

Drive Source Details

Drive Source Identifier : C
Fuel Identifier : G

Test Drive Code : F
Shift Indicator Light Usage Identifier : 1
Aged Component Usage Identifier : 4

Odometer Correction Details

Correction Initial Value : 0
Correction Factor Value : 1.0089
Correction Sign Identifier : -
Correction Units Code : M

Engine Code Text : G4KN-AC
Engine Rated Horsepower Value : 186
Engine Displacement Value : 2.5

Air Aspiration Details

Air Aspiration Method Identifier : NA

VKMXV02.5DR3 - Kia K5 2.5L GDPI (GPF) - Part 1

Issued : 04-02-2026

Revised:

Vehicle Specifications Details

Curb Weight Value : 3644
Equivalent Test Weight Value : 4000
Gross Vehicle Weight Rating Value : 4619
NV Ratio Value : 29.5
Axle Ratio Value : 3.51

Transmission Specifications Details

Light Duty Transmission Type Identifier : SA
Transmission Lockup Indicator : Y
Transmission Creeper Gear Indicator : N
Transmission Gear Count : 8

Target Set Coefficient Details

Test Procedure Dynamometer Coefficients Category : C-H-E
Target CoefficientA Value : 31.784
Target CoefficientB Value : 0.51077
Target CoefficientC Value : 0.014497
Set CoefficientA Value : 11.953
Set CoefficientB Value : 0.43682
Set CoefficientC Value : 0.014275

Target Set Coefficient Details

Test Procedure Dynamometer Coefficients Category : US06
Target CoefficientA Value : 31.784
Target CoefficientB Value : 0.51077
Target CoefficientC Value : 0.014497
Set CoefficientA Value : 11.953
Set CoefficientB Value : 0.43682
Set CoefficientC Value : 0.014275

Target Set Coefficient Details

Test Procedure Dynamometer Coefficients Category : Cold-CO
Target CoefficientA Value : 34.962
Target CoefficientB Value : 0.56185
Target CoefficientC Value : 0.015947
Set CoefficientA Value : 6.886
Set CoefficientB Value : 0.51001
Set CoefficientC Value : 0.015071

Manufacturer Comment Text : 27MY DN8 2.5 AWD 18in

EPA Generated Test Vehicle Details

Original Receipt Date : 20260305
Hybrid Vehicle Indicator : N
Adjusted Loaded Vehicle Weight Value : 4131
Loaded Vehicle Weight Value : 3944
Total Road Load Horsepower Value : 12.5

VKMXV02.5DR3 - Kia K5 2.5L GDPI (GPF) - Part 1

Issued : 04-02-2026

Revised:

Transaction Status Details Transaction Status Identifier : ACCEPTED

2. Exhaust & Evaporative Emission Data Vehicle

Please refer to CSI report in 07.00.

2207.00 Test Results
07.01 EV-CIS Certification Summary Information

Certification Summary Information Report submitted to EV-CIS.

See 18.00.00.

2. LITMUS TEST SHEET

* Reference : §600.115-11

Litmus Test of EDV

EDV	FTP(75°F)	Cold FTP (20°F)	HFET	US06	SC03
BAG1	28.9	22.0	46.3	17.9	23.1
BAG2	28.0	24.9		33.8	
BAG3	32.6	30.2			
TOTAL	29.3			28.2	

(1) Determining the City FE Method

5 Cycle City Criteria (Specific 5 cycle City FE $\geq$ 0.96 Mpg Based City FE)		Passed
---	--	--------

		UNROUNDED	ADJ. ROUNDED	Examination	Decision
CITY FE	MPG BASED	22.89122768	22.0	Applicable	Selected
	5-CYCLE	23.05096863	23.1	Applicable	
	Ratio of 5CYCLE to 0.96 MPG-BASED		105.00		

CRITERIA : 100%

(2) Determining the Hwy FE Method

5 Cycle Highway Criteria (Specific 5 cycle HWY FE $\geq$ 0.95 Mpg Based HWY FE)		Passed
--	--	--------

		UNROUNDED	ADJ. ROUNDED	Examination	Decision
HWY FE	MPG BASED	32.1028	30.5	Select This	Selected
	5-CYCLE	31.4722	31.5	Not Applicable	
	MODIFIED	31.4952	31.5	Not Applicable	
	Ratio of 5CYCLE to 0.95 MPG-BASED		103.28		

CRITERIA : 100%

08.00 Emission Compliance Statement

Please refer to Common Section 08.00.

09.00 OBD System Description

The on-board diagnostic (OBD) system complies with 40 CFR 86.1806-17, 86.1806-27 per the compliance option allowing demonstration of compliance with California OBD II requirements in Title 13 California Code of Regulation 1968.2 (13 CCR 1968.2) approved on November 30, 2022. Please refer to OBD application uploaded in EV-CIS system.

10.00 Description of Alternate-Fueled Vehicles: Not Applicable

VKMXV02.5DR3 - Kia K5 2.5L GDPI (GPF) - Part 1
Issued : 04-02-2026
Revised:

12.00 Description of Vehicles Covered by Certificate and Test Parameters

12.01 Vehicle Parameters

Carline		329	328
Model Name		K5 AWD	K5
Vehicle Classification		LDV	
Emission control System description	Type, number and configuration of catalyst(s)	See Sec. 02.02	
	EGR Type	Electronic	
	Air pump type	N/A	
	Fuel system type	DFI, SFI	
	Intake air aspiration method	Natural	
	Other	-	
Engine Code		G4KN-ACG	
Number of valves per cylinder		4	
Engine Displacement (L)		2.5	
Sales area		50-State	
Transmission and overdrive		AWD SA8	FWD SA8 + Stop/Start
SIL		N/A	N/A
Tire		235/45R18 Pirelli	205/65R16 Kumho
N/V Ratios		26.8	26.8
ETW(lb)		3875	3500
Elec. Dyno. Target Coefficient		Please refer to 07.02	
Fuel tank volume(gal)		15.9	

12.02.02 Engine Starting Procedures

Please refer to Common Section 12.02.02.

12.02.03 Shift Schedules

Please refer to Common Section 12.02.03.01

12.02.04 Transmission / Advanced Technology System Test Modes

Please refer to Common Section 12.02.04.

13.00 Projected Sales

Please refer to Common Section 13.00.

14.00 Request for Certification



Ms. Kathryn Kochunas
Certification Division
Mobile Source Pollution Control
U.S. Environmental Protection Agency
2000 Traverwood Drive
Ann Arbor, Michigan

Subject: Request for Certificate of Conformity for 2027 Model Year Test Group VKMXV02.5DR3
/Evaporative Family VKMXR0131DRG

Ms. Kathryn Kochunas:

Kia Corporation requests that EPA issue a Certificate of Conformity for the test group subjected above.

All vehicles within the test group mentioned above comply with the applicable regulations contained in 40 CFR 86.1844-01(d)(14) including the provisions of 40 CFR Parts 85, 86 and 600. This test group also complies with the California Air Resources Board, Final Regulation Order, Sections 1961.4 and 1961.3 (1962.4 and 1962.3 for zero-emission vehicles) Title 13, California Code of Regulations.

The Part 1 Application for Certification has been prepared in accordance with the standardized format recommended by EPA via its guidance document CD-14-19 (LDV/LDT/OCO/LIMO) Subject: Certification Application Reporting Guidance, dated November 24, 2014.

If you have any questions regarding the Certificate of Conformity, do not hesitate to contact Stephanie Wright at swright@hatci.com or (734) 273-1904.

Sincerely,



C. H. Ji
General Manager
Regulation & Certification Team2
Kia Company

VKMXV02.5DR3 - Kia K5 2.5L GDPI (GPF) - Part 1
Issued : 04-02-2026
Revised:



Ms. Robin U. Lang, Chief
Emissions Certification and Compliance Division
California Air Resources Board
4001 Iowa Ave.
Riverside, California 92507

Subject: Request for an Executive Order for 2027 Model Year Test Group VKMXV02.5DR3
/Evaporative Family VKMXR0131DRG

Dear Ms. Robin U. Lang:

Kia Corporation requests that California Air Resources Board (CARB) issue an Executive Order for the test group subjected above.

All vehicles within the test group mentioned above comply with the applicable regulations contained in 40 CFR 86.1844-01(d)(14) including the provisions of 40 CFR Parts 85, 86 and 600. This test group also complies with the California Air Resources Board, Final Regulation Order, Sections 1961.4 and 1961.3 (1962.4 and 1962.3 for zero-emission vehicles) Title 13, California Code of Regulations.

The Part 1 Application for Certification has been prepared in accordance with the standardized format recommended by EPA via its guidance document CD-14-19 (LDV/LDT/OCO/LIMO) Subject: Certification Application Reporting Guidance, dated November 24, 2014.

If you have any questions regarding the Executive Order, do not hesitate to contact Stephanie Wright at swright@hatci.com or (734) 273-1904.

Sincerely,

C. H. Ji
General Manager
Regulation & Certification Team2
Kia Company

VKMXV02.5DR3 - Kia K5 2.5L GDPI (GPF) - Part 1
Issued : 04-02-2026
Revised:

15.00 Other Information
15.01 Certification Fee Filing Form

15.02 Vehicle Emission Control Information (VECI) Label

	KIA CORPORATION VEHICLE EMISSION CONTROL INFORMATION	
Conforms to regulations :		2027 MY
U.S.EPA : Interim T4B30 LDV		OBD : CA II Fuel : Gasoline
California : LEV IV SULEV30 PC		OBD : CA II Fuel : Gasoline
No adjustments needed.	DFI, SFI, WR-HO2S, HO2S, WU-TWC, TWC, GPF, EGR, EGRC	
Group : VKMXV02.5DR3 Evap. : VKMXR0131DRG	UH	32450-2S334

15.03 ORVR Safety Statement

Kia uses standard technology in all ORVR systems for 2027MY vehicles. In accordance with EPA Guidance Letter CISC-06-06, ORVR applications will not be submitted.

15.04 New Technology System Description

Please refer to Common Section 15.04.

15.05 Engine Oil Information

Please refer to Common Section 15.05

16.00 California ARB Information

16.01 Exhaust Emission Control System (Tune-up label)

Test Group Name	Model	Exhaust Emission Control System
VKMXV02.5DR3	K5, K5 AWD	DFI,SFI, WR-HO2S, HO2S, WU-TWC, TWC, GPF, EGR, EGRC, OBD-II

Note:

DFI	: Direct Fuel Injection
SFI	: Sequential multipoint (Electronic) Fuel Injection
WR-HO2S	: Wide Range/Linear/Air-Fuel Ratio Heated Oxygen Sensor
HO2S	: Heated Oxygen Sensor
WU-TWC	: Warm up Three Way Catalyst System
TWC	: Three Way Catalyst System
GPF	: Gasoline Particle Filter
EGR	: Exhaust Gas Recirculation
EGRC	: EGR Cooler
OBD II	: On-Board Diagnostics II

16.02 Test Procedures

Please refer to Common Section 16.02.

16.03.00 Fill Pipe Access Zones Statement and Specifications

16.03.01 Fill Pipe Access Zones Statement

Please refer to Common Section 16.03.01.

16.04.00 Request for Certificate

Please refer to 14.00.

16.04.01 Statement of Compliance

Please refer to Common Section 16.04.01.

16.04.02 Supplemental Data Sheet

Please refer to E-cert data.

16.05.00 Emission Testing Waiver Statement

Please refer to Common Section 16.05.00.

16.06.00 Projected Sales

Please refer to Common Section 13.00.

16.07.00 OBD-II System Description

Please refer to section 09.00.

16.08.00 New Technology System Description

Please refer to Common Section 15.04.

16.09.00 Environmental Performance Label

Pursuant to CALIFORNIA ENVIRONMENTAL PERFORMANCE LABEL SPECIFICATIONS FOR 2009 AND SUBSEQUENT MODEL YEAR PASSENGER CARS, LIGHT-DUTY TRUCKS, AND MEDIUM-DUTY PASSENGER VEHICLES (adopted May 2, 2008, last amended September 2, 2015), 2012, Hyundai-Kia complies to the Environmental Performance Label requirement by affixing the Federal Fuel Economy and Environment Label in accordance to 40 CFR Parts 85, 86, and 600 as promulgated on July 6, 2011.

16.10.00 AECD General Statements

The vehicles contained in this test group are not equipped with a defeat device and are not equipped with alternative mapping strategies. Furthermore, all AECDs have been declared and described in the application.

As described in our application, the vehicle's transmission is not part of any AECD. However, the transmission gear is an input for the emissions control strategy, as described in that application. The ECU does not provide an output to the TCU to control emissions strategy.

When driving conditions on the road can be properly represented on the dynamometer, the transmission will perform in the same manner. However, there are some different driving conditions, such as an uphill or downhill grade, extreme heat or extreme cold conditions, heavy braking, and curved road driving conditions, which cannot be appropriately represented on the dynamometer. In these conditions where necessary to protect the transmission or to prevent an unnatural shift pattern, a different shift pattern may be executed. It is our understanding that this is commonly used throughout the industry.

The Hyundai-Kia American Technical Center and the Hyundai Motor Group Research and Development Center in Namyang, Korea have endeavored to respond based on our understanding of the regulatory definition of an AECD, the past certification reviews of AECDs conducted by ARB, existing guidance regarding AECDs issued by ARB, and, of course, EPA's and ARB's increased interest in this area. We will continue to monitor guidance issued by ARB regarding the level of information and detail desired in a certification application, and will continue to evaluate AECD issues to ensure transparency with respect to our vehicle and engine performance.

16.11.00 California 7warranty compliance

Please refer to Common Section 16.11.00.

16.12.00 Description of the Propulsion System: Not Applicable

16.13.00 ZEV Compliance: Not Applicable

17.00.00 Service of Process

Please refer to Common Section 01.00.

18.00.00 Attachment

1. CSI Report

Certification Summary Information Report

Manufacturer	Kia Corporation	Manufacturer Code	KMX
Test Group	VKMXV02.5DR3	Evaporative/Refueling Family	VKMXR0131DRG
Certificate Number	--	CARB Executive Order #	--
Certificate Issue Date	--	Certificate Revision Date	--
Certificate Effective Date	--	Conditional Certificate	--
CSI Revision #	--	CSI Submission/Revision Date	06/11/2026 10:18:26 PM
Model Year	2027		

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 & ported injection	No

Hybrid Indicator	No		
Multiple Fuel Storage	--	Rechargeable Energy Storage System Indicator	--
Multiple Fuel Combustion	--	Off-board Charge Capable Indicator	--
Fuel Cell Indicator	--	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	VKMXGPGNNDR3	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	06/30/2026	CAP2000 Conditional Certificate?	N/A
Independent Commercial Importer?	--	Alternative Fuel Converter Certificate?	--
SFTP Federal Composite Compliance Identifier	Tier 3	SFTP Tier 2 Composite CO Option	No
SFTP LEV-III Composite Compliance Indicator	No		
OBD Compliance Type	CARB	OBD Demonstration Vehicle Test Group	VHYXV02.5UP3
Test Group OBD Compliance Level	Full - no deficiencies	Number of Test Group OBD Deficiencies	0
OBD Deficiencies Comments	--		
Mfr Test Group Comments	The fuel for Litmus test is E0. Litmus result(Value/Threshold): City(23.1/22.0) HWY(31.5/30.5). Test No: VKMX91006720(FTP), VKMX91006719(HWY), VKMX91006718(US06), VKMX10092930(SC03), VKMX10092931(Cold). Engine code in the VI was changed from G4KN-AC to G4KN-ACG.		
Mfr Exhaust / Evap Standards Comments	--		

Certification Summary Information Report

Test Group	VKM XV02.5DR3	Evaporative/Refueling Family	VKM XR0131DRG				
Evaporative/Refueling Family Information							
Evaporative Summary Information Type	New	Submission/Correction Date	03/17/2026 01:34:20 AM				
Integrated ORVR?	Yes	Fuel(s)	Gasoline				
Multiple Fuel Storage	--						
Bladder Fuel Tank?	No						
Fuel Tank Material	Plastic	Fuel Tank Material Description	HDPE				
Fill Pipe Seal Type	Liquid seal						
Air Intake System Vapor Storage Device?	Yes	Air Intake System Vapor Storage Device Description	HC-TRAP				
Fuel System Vapor Storage Canister?	Yes	Other Vapor Storage	--				
Fuel System Vapor Storage Canister(s) Total Working Capacity (grams)	131	Number of Primary Canisters	1				
Number of Bleed Canisters	0	Bleed Canister Total Working Capacity (grams)	--				
Mfr Evaporative/Refueling Family Comments	--						
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	--						
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				
VKM XR0131DRG-DL3	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
Kia Corporation	1 - KIA	328 - K5	California + CAA Section 177 states	2-Wheel Drive, Front	Semi-Automatic	8	Yes
Kia Corporation	1 - KIA	328 - K5	Federal	2-Wheel Drive, Front	Semi-Automatic	8	Yes
Kia Corporation	1 - KIA	329 - K5 AWD	Federal	All Wheel Drive	Semi-Automatic	8	Yes
Kia Corporation	1 - KIA	329 - K5 AWD	California + CAA Section 177 states	All Wheel Drive	Semi-Automatic	8	Yes
Engine Description							
Hybrid Type	--	Hybrid Description	--				
Engine Type	4-Stroke Spark Ignition	Mfr Engine Description	--				
Engine Block Arrangement	Inline	Mfr Engine Block Arrangement Description	--				
Camless Valvetrain Indicator	No	Oil Viscosity/Classification	SAE 0W20				
Number of Cylinders/Rotors	4	Mechanically Variable Compression Ratio Indicator	N				

Certification Summary Information Report

Test Group		VKMXV02.5DR3		Evaporative/Refueling Family		VKMXR0131DRG					
After Treatment Device(s) (ATD)											
ATD Number		ATD Type		ATD Precious Metal		Substrate Material		Substrate Construction			
1		Three-way catalyst		Platinum + Palladium + Rhodium		Ceramic		Monolith			
2		Other		Platinum + Palladium + Rhodium		Ceramic		Monolith			
3		Three-way catalyst		Platinum + Rhodium		Ceramic		Monolith			
Mfr After Treatment Device (ATD) Comments		ATD #2 type = other(Catalyzed GPF)									
Direct Ozone Reduction (DOR) Device		Not Equipped									
Mfr Emission Control Device Comments		--									
Engine Configuration Number 1											
Engine Displacement (liters)		2.5		Engine Rated Horsepower		186					
Number of Inlet Valves Per Cylinder		2		Number of Exhaust Valves Per Cylinder		2					
Air Aspiration Method		Naturally Aspirated		Number of Air Aspiration Devices		--					
Air Aspiration Device Configuration		--		Charge Air Cooler Type		--					
Air Aspiration Drive Method(s)		Mechanical									
Cylinder Deactivation		No									
Cylinder Deactivation Description		--									
Variable Valve Timing		Yes									
Variable Valve Timing System Description		VVT									
Variable Valve Lift?		No									
Variable Valve Lift System Description		--									
Number of Knock Sensors		1		Number of Air/Fuel Sensors		2					
Air/Fuel Sensor # 1 Type		Heated oxygen		Air/Fuel Sensor # 1 Description		--					
Air/Fuel Sensor # 2 Type		Other		Air/Fuel Sensor # 2 Description		WR-HO2S					
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		--		Air Injection Type if 'Other'		--					
Mfr Engine Configuration Comments		--									
Official Test Numbers											
Test Group	Fuel	FTP	US06	SC03	Cold CO	Highway	EPA City Litmus Value	EPA City Litmus Threshold	EPA Highway Litmus Value	EPA Highway Litmus Threshold	CREE Weighting Factor
Gasoline	VKMX91006733	VKMX91006730	VKMX10092924	VKMX10092925	VKMX91006734	63.7	21.9	120.8	30.7	--	

Certification Summary Information Report

Test Group		VKMXV02.5DR3		Evaporative/Refueling Family		VKMXR0131DRG	
SFTP LEV-III Official Test Numbers							
Test Group Fuel		FTP		US06		SC03	
Gasoline		VKMX91006733		VKMX91006730		VKMX10092924	

Certification Summary Information Report

Test Group	VKMXV02.5DR3	Evaporative/Refueling Family	VKMXR0131DRG
-------------------	--------------	-------------------------------------	--------------

Emission Data Vehicle Information

Vehicle ID / Configuration	DN8U0H5GA023F / 0	Manufacturer Vehicle Configuration Number	0
Original Test Group Name	LHYXV02.5ER3	Original Evaporative/Refueling Family	LHYXR0125ERG
Original Test Vehicle Model Year	2020		

Vehicle Model

Represented Test Vehicle Make	Hyundai	Represented Test Vehicle Model	Sonata
--------------------------------------	---------	---------------------------------------	--------

Leak Family Details

Leak Family Identifier	DN1	Leak Family Name	LHYXR0125ERG-DN1
-------------------------------	-----	-------------------------	------------------

Drive Sources and Fuel System Details

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	0.982
Odometer Correction Sign	- = System Miles is equal to (Test odometer reading - Initial system miles) * Correction factor		
Odometer Correction Units	Miles		
Engine Code	G4KN-ACS	Rated Horsepower	191
Displacement (liters)	2.5		
Air Aspiration Method	Naturally Aspirated	Air Aspiration Method, if 'Other'	
Number of Air Aspiration Devices	--	Air Aspiration Device Configuration	--
Charge Air Cooler Type	--	Drive Mode While Testing	2-Wheel Drive, Front
Shift Indicator Light Usage	Not equipped	Aged Emission Components	4,000 (mi)
Curb Weight (lbs)	3120	Equivalent Test Weight (pounds)	3375
GVWR (lbs)	4354	N/V Ratio	27
Axle Ratio	3.2		
Transmission Type	Semi-Automatic	# of Transmission Gears	8
Transmission Lockup	Yes	Creep Gear	No

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	24.194	0.30292	0.015435	2.901	0.39728	0.013678	10.4
US06	24.194	0.30292	0.015435	2.901	0.39728	0.013678	N/A

Certification Summary Information Report

Test Group	VKMXV02.5DR3	Evaporative/Refueling Family	VKMXR0131DRG						
Emission Control Device Comments	w/Stop&Start								
Manufacturer Test Vehicle Comments	20MY DN8a 2.5L 16" Tire w/Stop&Start (ETW:3375)_Evap Vehicle								
Test #	LHYX10059890	Test Procedure	38 - CA fuel 3-day evap.						
Exhaust Test # for this Evap Test	LHYX10059882	Test Fuel Type	46 - CARB LEV3 E10 Regular Gasoline						
Test Date	06/09/2019	Fuel	Gasoline						
Fuel Batch ID	19E-02	Fuel Calibration Number	1						
Vehicle Class	N/A	DF Type	Mfr. Determined						
Verify Test Lab ID	772-1, Jangduck-Dong								
E10 Evaporative Test Measurement Method	Calculated (1.08 x FID Total Hydrocarbons)								
Test Start Odometer Reading	4754	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	No						
Test Results									
<table border="1"> <tr> <th>Test Result Name</th> <th>Unrounded Test Result</th> <th>Verify Calculated FE Equivalent Value (miles per gallon)</th> </tr> <tr> <td>HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)</td> <td>0.1858</td> <td>--</td> </tr> </table>				Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)	HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)	0.1858	--
Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)							
HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)	0.1858	--							
Manufacturer Test Comments									
20MY DN8a 2.5L 16" Tire w/Stop&Start (ETW:3375) - 3Day EVAP									
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	0.1858	0	0.186	0.300	Pass	
CA	150,000 miles	California LEV-IV Zero Evap (Option 2)	HC-TOTAL-EQUIV	0.1858	0	0.186	0.300	Pass	

Certification Summary Information Report

Test Group	VKMXV02.5DR3	Evaporative/Refueling Family	VKMXR0131DRG
Test #	LHYX91004432	Test Procedure	27 - California fuel 2-day evap
Exhaust Test # for this Evap Test	LHYX91004427	Test Fuel Type	46 - CARB LEV3 E10 Regular
Test Date	08/23/2019	Fuel	Gasoline
Fuel Batch ID	26757	Fuel Calibration Number	1
Vehicle Class	N/A	DF Type	Mfr. Determined
Verify Test Lab ID	--		
E10 Evaporative Test Measurement Method	Calculated (1.08 x FID Total Hydrocarbons)		
Test Start Odometer Reading	5084	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	No

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value
HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)	0.203123	--

Manufacturer Test Comments

Hot_Soak_HC_(g) = 0.025568, Diurnal (gHC) = 0.177555

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	0.2031	0	0.203	0.300	Pass
CA	150,000 miles	California LEV-IV Zero Evap (Option 2)	HC-TOTAL-EQUIV	0.2031	0	0.203	0.300	Pass

Certification Summary Information Report

Test Group	VKMXV02.5DR3	Evaporative/Refueling Family	VKMXR0131DRG						
Test #	LHYX10059886	Test Procedure	37 - California Fuel Running Loss						
Exhaust Test # for this Evap Test	LHYX10059882	Test Fuel Type	46 - CARB LEV3 E10 Regular Gasoline						
Test Date	06/09/2019	Fuel	Gasoline						
Fuel Batch ID	19E-02	Fuel Calibration Number	1						
Vehicle Class	N/A	DF Type	Mfr. Determined						
Verify Test Lab ID	772-1, Jangduck-Dong								
E10 Evaporative Test Measurement Method	Calculated (1.08 x FID Total Hydrocarbons)								
Test Start Odometer Reading	4754	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	No						
Test Results									
<table border="1"> <tr> <th>Test Result Name</th> <th>Unrounded Test Result</th> <th>Verify Calculated FE Equivalent Value (miles per gallon)</th> </tr> <tr> <td>HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)</td> <td>0.006</td> <td>--</td> </tr> </table>				Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)	HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)	0.006	--
Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)							
HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)	0.006	--							
Manufacturer Test Comments									
20MY DN8a 2.5L 16" Tire w/Stop&Start(ETW:3375) - Running Loss									
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	0.006	0	0.01	0.05	Pass	
CA	150,000 miles	California LEV-IV Zero Evap (Option 2)	HC-TOTAL-EQUIV	0.006	0	0.01	0.01	Pass	

Certification Summary Information Report

Test Group	VKMXV02.5DR3	Evaporative/Refueling Family	VKMXR0131DRG						
Test #	LHYX10059888	Test Procedure	24 - Federal fuel refueling test (ORVR)						
Exhaust Test # for this Evap Test	LHYX10059884	Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)						
Test Date	06/15/2019	Fuel	Gasoline						
Fuel Batch ID	18T-03	Fuel Calibration Number	1						
Vehicle Class	N/A	DF Type	Mfr. Determined						
Verify Test Lab ID	772-1, Jangduck-Dong								
E10 Evaporative Test Measurement Method	Calculated (1.08 x FID Total Hydrocarbons)								
Test Start Odometer Reading	4820	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	No						
Test Results									
<table border="1"> <tr> <th>Test Result Name</th> <th>Unrounded Test Result</th> <th>Verify Calculated FE Equivalent Value (miles per gallon)</th> </tr> <tr> <td>HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)</td> <td>0.012</td> <td>--</td> </tr> </table>				Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)	HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)	0.012	--
Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)							
HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)	0.012	--							
Manufacturer Test Comments									
20MY DN8a 2.5L 16" Tire w/Stop&Start(ETW:3375) - ORVR									
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	0.012	0	0.01	0.20	Pass	
CA	150,000 miles	California LEV-IV Zero Evap (Option 2)	HC-TOTAL-EQUIV	0.012	0	0.01	0.20	Pass	

Certification Summary Information Report

Test Group	VKMXV02.5DR3	Evaporative/Refueling Family	VKMXR0131DRG
Test #	LHYX10059885	Test Procedure	65 - Evap Canister Bleed Test
Exhaust Test # for this Evap Test	--	Test Fuel Type	46 - CARB LEV3 E10 Regular Gasoline
Test Date	04/24/2019	Fuel	Gasoline
Fuel Batch ID	19E-02	Fuel Calibration Number	1
Vehicle Class	N/A	DF Type	Mfr. Determined
Verify Test Lab ID	772-1, Jangduck-Dong		
E10 Evaporative Test Measurement Method	Calculated (1.08 x FID Total Hydrocarbons)		
Test Start Odometer Reading	4822	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	No

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
HC-TOTAL (Total Hydrocarbon)	0.004	--

Manufacturer Test Comments

20MY DN8a 2.5L 16" Tire w/Stop&Start(ETW:3375) - Canister Bleed

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	0.0040	0	0.004	0.020	Pass
CA	150,000 miles	California LEV-IV Zero Evap (Option 2)	HC-TOTAL	0.0040	0	0.004	0.020	Pass

Certification Summary Information Report

Test Group	VKMXV02.5DR3	Evaporative/Refueling Family	VKMXR0131DRG						
Test #	LHYX10059889	Test Procedure	68 - Leak Test - Port Near Fuel Pipe						
Exhaust Test # for this Evap Test	--	Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)						
Test Date	06/15/2019	Fuel	Gasoline						
Fuel Batch ID	18T-03	Fuel Calibration Number	1						
Vehicle Class	N/A	DF Type	Mfr. Determined						
Verify Test Lab ID	772-1, Jangduck-Dong								
E10 Evaporative Test Measurement Method	--								
Test Start Odometer Reading	4822	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	No						
Test Results									
<table border="1"> <thead> <tr> <th>Test Result Name</th> <th>Unrounded Test Result</th> <th>Verify Calculated FE Equivalent Value</th> </tr> </thead> <tbody> <tr> <td>LEAK-DIA (Effective Leak Diameter (inches))</td> <td>0</td> <td>--</td> </tr> </tbody> </table>				Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value	LEAK-DIA (Effective Leak Diameter (inches))	0	--
Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value							
LEAK-DIA (Effective Leak Diameter (inches))	0	--							
Manufacturer Test Comments									
20MY DN8a 2.5L 16" Tire w/Stop&Start(ETW:3375) - Leak Test Port Near Fuel Pipe									
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	LEAK-DIA	0.0000	0	0.000	0.020	Pass	
CA	150,000 miles	California LEV-IV Zero Evap (Option 2)	LEAK-DIA	0.000	0	0.00	0.02	Pass	

Certification Summary Information Report

Test Group	VKMXV02.5DR3	Evaporative/Refueling Family	VKMXR0131DRG						
Test #	LHYX10059891	Test Procedure	67 - Leak Test - Port Near Canister						
Exhaust Test # for this Evap Test	--	Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)						
Test Date	06/15/2019	Fuel	Gasoline						
Fuel Batch ID	18T-03	Fuel Calibration Number	1						
Vehicle Class	N/A	DF Type	Mfr. Determined						
Verify Test Lab ID	772-1, Jangduck-Dong								
E10 Evaporative Test Measurement Method	--								
Test Start Odometer Reading	4822	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	No						
Test Results									
<table border="1"> <tr> <td>Test Result Name</td> <td>Unrounded Test Result</td> <td>Verify Calculated FE Equivalent Value</td> </tr> <tr> <td>LEAK-DIA (Effective Leak Diameter (inches))</td> <td>0</td> <td>--</td> </tr> </table>				Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value	LEAK-DIA (Effective Leak Diameter (inches))	0	--
Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value							
LEAK-DIA (Effective Leak Diameter (inches))	0	--							
Manufacturer Test Comments									
20MY DN8a 2.5L 16" Tire w/Stop&Start(ETW:3375) - Leak Test Port Near Canister									
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	LEAK-DIA	0.0000	0	0.000	0.020	Pass	
CA	150,000 miles	California LEV-IV Zero Evap (Option 2)	LEAK-DIA	0.000	0	0.00	0.02	Pass	

Certification Summary Information Report

Test Group	VKMXV02.5DR3	Evaporative/Refueling Family	VKMXR0131DRG						
Emission Data Vehicle Information									
Vehicle ID / Configuration	DL3U7H5GA110A / 0	Manufacturer Vehicle Configuration Number	0						
Original Test Group Name	VKMXV02.5DR3	Original Evaporative/Refueling Family	VKMXR0131DRG						
Original Test Vehicle Model Year	2027								
Vehicle Model									
Represented Test Vehicle Make	Kia	Represented Test Vehicle Model	K5						
Leak Family Details									
Leak Family Identifier	DL3	Leak Family Name	VKMXR0131DRG-DL3						
Drive Sources and Fuel System Details									
	<table border="1"> <tr> <th>Drive Source and Fuel#</th><th>Drive Source</th><th>Fuel</th></tr> <tr> <td>1</td><td>Combustion Engine</td><td>Gasoline</td></tr> </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	1.008						
Odometer Correction Sign	- = System Miles is equal to (Test odometer reading - Initial system miles) * Correction factor								
Odometer Correction Units	Miles								
Engine Code	G4KN-ACG	Rated Horsepower	186						
Displacement (liters)	2.5								
Air Aspiration Method	Naturally Aspirated	Air Aspiration Method, if 'Other'							
Number of Air Aspiration Devices	--	Air Aspiration Device Configuration	--						
Charge Air Cooler Type	--	Drive Mode While Testing	2-Wheel Drive, Front						
Shift Indicator Light Usage	Not equipped	Aged Emission Components	4,000 (mi)						
Curb Weight (lbs)	3543	Equivalent Test Weight (pounds)	3875						
GVWR (lbs)	4519	N/V Ratio	26.8						
Axle Ratio	3.2								
Transmission Type	Semi-Automatic	# of Transmission Gears	8						
Transmission Lockup	Yes	Creep Gear	No						

Certification Summary Information Report

Test Group		VKMXV02.5DR3			Evaporative/Refueling Family		VKMXR0131DRG	
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	37.642	0.14052	0.018712	19.828	-0.01883	0.019507	12.2	
Cold CO	41.406	0.15457	0.01816	13.075	-0.01199	0.021016	N/A	
US06	37.642	0.14052	0.018712	19.828	-0.01883	0.019507	N/A	
Emission Control Device Comments		--						
Manufacturer Test Vehicle Comments		27MY DL3 PE 2.5 GPF 8AT 18inch. Engine code changed from 'G4KN-AC' to 'G4KN-ACG' for GPF model.						

Certification Summary Information Report

Test Group	VKMXV02.5DR3	Evaporative/Refueling Family	VKMXR0131DRG
Test #	VKMX10092925	Test Procedure	11 - Cold CO
Exhaust Test # for this Evap Test	--	Test Fuel Type	28 - Cold CO E10 Regular Gasoline (Tier 3)
Test Date	12/11/2025	Fuel	Gasoline
Fuel Batch ID	25D-02	Fuel Calibration Number	1
Vehicle Class	LDV/Passenger Car	DF Type	Mfr. Determined
Verify Test Lab ID	772-1, Jangduck-Dong		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4273	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			

Certification Summary Information Report

Test Group	VKMXV02.5DR3	Evaporative/Refueling Family	VKMXR0131DRG																																																																											
	<table><tr><th>Test Result Name</th><th>Unrounded Test Result</th><th>Verify Calculated FE Equivalent Value (miles per gallon)</th></tr><tr><td>CO2 BAG 1 (Bag 1 Carbon Dioxide)</td><td>376</td><td>--</td></tr><tr><td>CO BAG 1 (Bag 1 Carbon Monoxide)</td><td>2.32</td><td>--</td></tr><tr><td>FE BAG 1 (Bag 1 Fuel Economy)</td><td>22.7</td><td>22.7</td></tr><tr><td>CH4 BAG 1 (Bag 1 Methane)</td><td>0.041</td><td>--</td></tr><tr><td>NMOG BAG 1 (Bag 1 Non-methane organic gases)</td><td>0.193</td><td>--</td></tr><tr><td>CO2 BAG 2 (Bag 2 Carbon Dioxide)</td><td>347</td><td>--</td></tr><tr><td>CO BAG 2 (Bag 2 Carbon Monoxide)</td><td>0.04</td><td>--</td></tr><tr><td>FE BAG 2 (Bag 2 Fuel Economy)</td><td>24.9</td><td>24.9</td></tr><tr><td>CH4 BAG 2 (Bag 2 Methane)</td><td>0.002</td><td>--</td></tr><tr><td>NMOG BAG 2 (Bag 2 Non-methane organic gases)</td><td>0</td><td>--</td></tr><tr><td>CO2 BAG 3 (Bag 3 Carbon Dioxide)</td><td>284</td><td>--</td></tr><tr><td>CO BAG 3 (Bag 3 Carbon Monoxide)</td><td>0.04</td><td>--</td></tr><tr><td>FE BAG 3 (Bag 3 Fuel Economy)</td><td>30.4</td><td>30.4</td></tr><tr><td>CH4 BAG 3 (Bag 3 Methane)</td><td>0.003</td><td>--</td></tr><tr><td>NMOG BAG 3 (Bag 3 Non-methane organic gases)</td><td>0</td><td>--</td></tr><tr><td>METHANE (CH4 - Methane)</td><td>0.01</td><td>--</td></tr><tr><td>CO (Carbon Monoxide)</td><td>0.51</td><td>--</td></tr><tr><td>DT-ASCR (Drive Trace Absolute Speed Change Rating)</td><td>1.08</td><td>--</td></tr><tr><td>DT-EER (Drive Trace Energy Economy Rating)</td><td>0.87</td><td>--</td></tr><tr><td>DT-IWRR (Drive Trace Inertia Work Ratio Rating)</td><td>1.61</td><td>--</td></tr><tr><td>MFR FE (Manufacturer Fuel Economy)</td><td>25.6</td><td>25.6</td></tr><tr><td>HC-NM (Non-methane Hydrocarbon)</td><td>0.036</td><td>--</td></tr><tr><td>NMOG (Non-methane organic gases)</td><td>0.04</td><td>--</td></tr><tr><td>HC-TOTAL (Total Hydrocarbon)</td><td>0.046</td><td>--</td></tr></table>	Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)	CO2 BAG 1 (Bag 1 Carbon Dioxide)	376	--	CO BAG 1 (Bag 1 Carbon Monoxide)	2.32	--	FE BAG 1 (Bag 1 Fuel Economy)	22.7	22.7	CH4 BAG 1 (Bag 1 Methane)	0.041	--	NMOG BAG 1 (Bag 1 Non-methane organic gases)	0.193	--	CO2 BAG 2 (Bag 2 Carbon Dioxide)	347	--	CO BAG 2 (Bag 2 Carbon Monoxide)	0.04	--	FE BAG 2 (Bag 2 Fuel Economy)	24.9	24.9	CH4 BAG 2 (Bag 2 Methane)	0.002	--	NMOG BAG 2 (Bag 2 Non-methane organic gases)	0	--	CO2 BAG 3 (Bag 3 Carbon Dioxide)	284	--	CO BAG 3 (Bag 3 Carbon Monoxide)	0.04	--	FE BAG 3 (Bag 3 Fuel Economy)	30.4	30.4	CH4 BAG 3 (Bag 3 Methane)	0.003	--	NMOG BAG 3 (Bag 3 Non-methane organic gases)	0	--	METHANE (CH4 - Methane)	0.01	--	CO (Carbon Monoxide)	0.51	--	DT-ASCR (Drive Trace Absolute Speed Change Rating)	1.08	--	DT-EER (Drive Trace Energy Economy Rating)	0.87	--	DT-IWRR (Drive Trace Inertia Work Ratio Rating)	1.61	--	MFR FE (Manufacturer Fuel Economy)	25.6	25.6	HC-NM (Non-methane Hydrocarbon)	0.036	--	NMOG (Non-methane organic gases)	0.04	--	HC-TOTAL (Total Hydrocarbon)	0.046	--		
	Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)																																																																											
	CO2 BAG 1 (Bag 1 Carbon Dioxide)	376	--																																																																											
	CO BAG 1 (Bag 1 Carbon Monoxide)	2.32	--																																																																											
	FE BAG 1 (Bag 1 Fuel Economy)	22.7	22.7																																																																											
	CH4 BAG 1 (Bag 1 Methane)	0.041	--																																																																											
	NMOG BAG 1 (Bag 1 Non-methane organic gases)	0.193	--																																																																											
	CO2 BAG 2 (Bag 2 Carbon Dioxide)	347	--																																																																											
	CO BAG 2 (Bag 2 Carbon Monoxide)	0.04	--																																																																											
	FE BAG 2 (Bag 2 Fuel Economy)	24.9	24.9																																																																											
	CH4 BAG 2 (Bag 2 Methane)	0.002	--																																																																											
	NMOG BAG 2 (Bag 2 Non-methane organic gases)	0	--																																																																											
	CO2 BAG 3 (Bag 3 Carbon Dioxide)	284	--																																																																											
	CO BAG 3 (Bag 3 Carbon Monoxide)	0.04	--																																																																											
	FE BAG 3 (Bag 3 Fuel Economy)	30.4	30.4																																																																											
	CH4 BAG 3 (Bag 3 Methane)	0.003	--																																																																											
	NMOG BAG 3 (Bag 3 Non-methane organic gases)	0	--																																																																											
	METHANE (CH4 - Methane)	0.01	--																																																																											
	CO (Carbon Monoxide)	0.51	--																																																																											
	DT-ASCR (Drive Trace Absolute Speed Change Rating)	1.08	--																																																																											
	DT-EER (Drive Trace Energy Economy Rating)	0.87	--																																																																											
	DT-IWRR (Drive Trace Inertia Work Ratio Rating)	1.61	--																																																																											
	MFR FE (Manufacturer Fuel Economy)	25.6	25.6																																																																											
	HC-NM (Non-methane Hydrocarbon)	0.036	--																																																																											
	NMOG (Non-methane organic gases)	0.04	--																																																																											
	HC-TOTAL (Total Hydrocarbon)	0.046	--																																																																											
		<table><tr><th>Test Result Name</th><th>Unrounded Test Result</th><th>Verify Calculated CO2</th></tr><tr><td>Carbon dioxide</td><td>336</td><td>--</td></tr></table>	Test Result Name	Unrounded Test Result	Verify Calculated CO2	Carbon dioxide	336	--																																																																						
Test Result Name	Unrounded Test Result	Verify Calculated CO2																																																																												
Carbon dioxide	336	--																																																																												
Manufacturer Test Comments	27MY DL3 2.5 8AT AWD 18inch GPF (EDV) E10 20F																																																																													

Certification Summary Information Report

Test Group		VKMXV02.5DR3			Evaporative/Refueling Family					VKMXR0131DRG		
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	0.51	--	--	--	0.05	--	0.6	10.0	Pass
Fed	120,000 miles	Federal Tier 3 Bin 30	HC-NM	0.04	--	--	--	0.0030	--	0.0	0.3	Pass
CA	50,000 miles	California LEV-IV SULEV30	CO	0.51	--	--	--	0.05	--	0.6	10.0	Pass

Certification Summary Information Report

Test Group	VKMXV02.5DR3	Evaporative/Refueling Family	VKMXR0131DRG
Test #	VKMX10092926	Test Procedure	52 - Fed. fuel 50 F exh.
Exhaust Test # for this Evap Test	--	Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)
Test Date	12/09/2025	Fuel	Gasoline
Fuel Batch ID	25T-03	Fuel Calibration Number	1
Vehicle Class	LDV/Passenger Car	DF Type	Mfr. Determined
Verify Test Lab ID	772-1, Jangduck-Dong		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4204	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
CO (Carbon Monoxide)	0.22	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	0.91	--
DT-EER (Drive Trace Energy Economy Rating)	0.94	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	1.55	--
NOX (Nitrogen Oxide)	0.0012	--
NMOG (Non-methane organic gases)	0.01	--

Manufacturer Test Comments 27MY DL3 2.5 8AT AWD 18inch GPF (EDV) E10 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-IV SULEV30	CO	0.22	--	--	--	0	--	0.2	1.0	Pass
CA	4,000 miles	California LEV-IV SULEV30	NMOG	0.0100	--	1.10	--	0	--	0.010	99.999	Pass
CA	4,000 miles	California LEV-IV SULEV30	NMOG+NOX	0.0112	--	--	--	--	--	0.011	0.060	Pass
CA	4,000 miles	California LEV-IV SULEV30	NOX	0.0012	--	--	--	0	--	0.001	99.999	Pass

Certification Summary Information Report

Test Group	VKMXV02.5DR3	Evaporative/Refueling Family	VKMXR0131DRG
Test #	VKMX91006720	Test Procedure	2 - CVS 75 and later (w/o can. load)
Exhaust Test # for this Evap Test	--	Test Fuel Type	61 - Tier 2 Cert Gasoline
Test Date	03/05/2026	Fuel	Gasoline
Fuel Batch ID	29351	Fuel Calibration Number	1
Vehicle Class	LDV/Passenger Car	DF Type	Mfr. Determined
Verify Test Lab ID	--		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4669	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			

Certification Summary Information Report

Test Group	VKMXV02.5DR3	Evaporative/Refueling Family	VKMXR0131DRG																																																																																
	<table><tr><th>Test Result Name</th><th>Unrounded Test Result</th><th>Verify Calculated FE Equivalent Value (miles per gallon)</th></tr><tr><td>CO2 BAG 1 (Bag 1 Carbon Dioxide)</td><td>307.096344</td><td>--</td></tr><tr><td>CO BAG 1 (Bag 1 Carbon Monoxide)</td><td>0.7903282</td><td>--</td></tr><tr><td>FE BAG 1 (Bag 1 Fuel Economy)</td><td>28.894865</td><td>--</td></tr><tr><td>CH4 BAG 1 (Bag 1 Methane)</td><td>0.0073334</td><td>--</td></tr><tr><td>NMOG BAG 1 (Bag 1 Non-methane organic gases)</td><td>0.0278158</td><td>--</td></tr><tr><td>CO2 BAG 2 (Bag 2 Carbon Dioxide)</td><td>318.1760559</td><td>--</td></tr><tr><td>CO BAG 2 (Bag 2 Carbon Monoxide)</td><td>0</td><td>--</td></tr><tr><td>FE BAG 2 (Bag 2 Fuel Economy)</td><td>28.0111294</td><td>--</td></tr><tr><td>CH4 BAG 2 (Bag 2 Methane)</td><td>0.0014502</td><td>--</td></tr><tr><td>NMOG BAG 2 (Bag 2 Non-methane organic gases)</td><td>0</td><td>--</td></tr><tr><td>CO2 BAG 3 (Bag 3 Carbon Dioxide)</td><td>273.6326904</td><td>--</td></tr><tr><td>CO BAG 3 (Bag 3 Carbon Monoxide)</td><td>0.0013495</td><td>--</td></tr><tr><td>FE BAG 3 (Bag 3 Fuel Economy)</td><td>32.5701065</td><td>--</td></tr><tr><td>CH4 BAG 3 (Bag 3 Methane)</td><td>0.0023802</td><td>--</td></tr><tr><td>NMOG BAG 3 (Bag 3 Non-methane organic gases)</td><td>0</td><td>--</td></tr><tr><td>METHANE (CH4 - Methane)</td><td>0.0029227</td><td>--</td></tr><tr><td>CO (Carbon Monoxide)</td><td>0.163869</td><td>--</td></tr><tr><td>DT-ASCR (Drive Trace Absolute Speed Change Rating)</td><td>1.3329108</td><td>--</td></tr><tr><td>DT-EER (Drive Trace Energy Economy Rating)</td><td>1.1086432</td><td>--</td></tr><tr><td>DT-IWRR (Drive Trace Inertia Work Ratio Rating)</td><td>2.2046726</td><td>--</td></tr><tr><td>MFR FE (Manufacturer Fuel Economy)</td><td>29.3239803</td><td>--</td></tr><tr><td>NOX (Nitrogen Oxide)</td><td>0.0016148</td><td>--</td></tr><tr><td>N2O (Nitrous Oxide)</td><td>0.0004941</td><td>--</td></tr><tr><td>HC-NM (Non-methane Hydrocarbon)</td><td>0.005533</td><td>--</td></tr><tr><td>NMOG (Non-methane organic gases)</td><td>0.0057544</td><td>--</td></tr><tr><td>HC-TOTAL (Total Hydrocarbon)</td><td>0.0079105</td><td>--</td></tr></table>	Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)	CO2 BAG 1 (Bag 1 Carbon Dioxide)	307.096344	--	CO BAG 1 (Bag 1 Carbon Monoxide)	0.7903282	--	FE BAG 1 (Bag 1 Fuel Economy)	28.894865	--	CH4 BAG 1 (Bag 1 Methane)	0.0073334	--	NMOG BAG 1 (Bag 1 Non-methane organic gases)	0.0278158	--	CO2 BAG 2 (Bag 2 Carbon Dioxide)	318.1760559	--	CO BAG 2 (Bag 2 Carbon Monoxide)	0	--	FE BAG 2 (Bag 2 Fuel Economy)	28.0111294	--	CH4 BAG 2 (Bag 2 Methane)	0.0014502	--	NMOG BAG 2 (Bag 2 Non-methane organic gases)	0	--	CO2 BAG 3 (Bag 3 Carbon Dioxide)	273.6326904	--	CO BAG 3 (Bag 3 Carbon Monoxide)	0.0013495	--	FE BAG 3 (Bag 3 Fuel Economy)	32.5701065	--	CH4 BAG 3 (Bag 3 Methane)	0.0023802	--	NMOG BAG 3 (Bag 3 Non-methane organic gases)	0	--	METHANE (CH4 - Methane)	0.0029227	--	CO (Carbon Monoxide)	0.163869	--	DT-ASCR (Drive Trace Absolute Speed Change Rating)	1.3329108	--	DT-EER (Drive Trace Energy Economy Rating)	1.1086432	--	DT-IWRR (Drive Trace Inertia Work Ratio Rating)	2.2046726	--	MFR FE (Manufacturer Fuel Economy)	29.3239803	--	NOX (Nitrogen Oxide)	0.0016148	--	N2O (Nitrous Oxide)	0.0004941	--	HC-NM (Non-methane Hydrocarbon)	0.005533	--	NMOG (Non-methane organic gases)	0.0057544	--	HC-TOTAL (Total Hydrocarbon)	0.0079105	--	
	Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)																																																																																
	CO2 BAG 1 (Bag 1 Carbon Dioxide)	307.096344	--																																																																																
	CO BAG 1 (Bag 1 Carbon Monoxide)	0.7903282	--																																																																																
	FE BAG 1 (Bag 1 Fuel Economy)	28.894865	--																																																																																
	CH4 BAG 1 (Bag 1 Methane)	0.0073334	--																																																																																
	NMOG BAG 1 (Bag 1 Non-methane organic gases)	0.0278158	--																																																																																
	CO2 BAG 2 (Bag 2 Carbon Dioxide)	318.1760559	--																																																																																
	CO BAG 2 (Bag 2 Carbon Monoxide)	0	--																																																																																
	FE BAG 2 (Bag 2 Fuel Economy)	28.0111294	--																																																																																
	CH4 BAG 2 (Bag 2 Methane)	0.0014502	--																																																																																
	NMOG BAG 2 (Bag 2 Non-methane organic gases)	0	--																																																																																
	CO2 BAG 3 (Bag 3 Carbon Dioxide)	273.6326904	--																																																																																
	CO BAG 3 (Bag 3 Carbon Monoxide)	0.0013495	--																																																																																
	FE BAG 3 (Bag 3 Fuel Economy)	32.5701065	--																																																																																
	CH4 BAG 3 (Bag 3 Methane)	0.0023802	--																																																																																
	NMOG BAG 3 (Bag 3 Non-methane organic gases)	0	--																																																																																
	METHANE (CH4 - Methane)	0.0029227	--																																																																																
	CO (Carbon Monoxide)	0.163869	--																																																																																
	DT-ASCR (Drive Trace Absolute Speed Change Rating)	1.3329108	--																																																																																
	DT-EER (Drive Trace Energy Economy Rating)	1.1086432	--																																																																																
	DT-IWRR (Drive Trace Inertia Work Ratio Rating)	2.2046726	--																																																																																
	MFR FE (Manufacturer Fuel Economy)	29.3239803	--																																																																																
	NOX (Nitrogen Oxide)	0.0016148	--																																																																																
	N2O (Nitrous Oxide)	0.0004941	--																																																																																
	HC-NM (Non-methane Hydrocarbon)	0.005533	--																																																																																
	NMOG (Non-methane organic gases)	0.0057544	--																																																																																
	HC-TOTAL (Total Hydrocarbon)	0.0079105	--																																																																																
		<table><tr><th>Test Result Name</th><th>Unrounded Test Result</th><th>Verify Calculated CREE/OPT-CREE</th></tr><tr><td>Carbon-Related Exhaust Emissions</td><td>9999.9999999</td><td>304</td></tr></table>	Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE	Carbon-Related Exhaust Emissions	9999.9999999	304																																																																											
	Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE																																																																																
	Carbon-Related Exhaust Emissions	9999.9999999	304																																																																																
		<table><tr><th>Test Result Name</th><th>Unrounded Test Result</th><th>Verify Calculated CO2</th></tr><tr><td>Carbon dioxide</td><td>303.6502991</td><td>--</td></tr></table>	Test Result Name	Unrounded Test Result	Verify Calculated CO2	Carbon dioxide	303.6502991	--																																																																											
Test Result Name	Unrounded Test Result	Verify Calculated CO2																																																																																	
Carbon dioxide	303.6502991	--																																																																																	
Manufacturer Test Comments	None																																																																																		

Certification Summary Information Report

Test Group		VKMXV02.5DR3				Evaporative/Refueling Family				VKMXR0131DRG		
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	304	--	--	--	0	--	304	--	--
Fed	120,000 miles	Federal Tier 3 Bin 30	METHANE	0.0029	--	--	--	0.0019	--	0.005	0.030	Pass
Fed	120,000 miles	Federal Tier 3 Bin 30	N2O	0.0005	--	--	--	0.0011	--	0.002	0.010	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	CO	0.16	--	--	--	0.16	--	0.3	1.0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG	0.0058	--	1.10	--	0.0042	--	0.010	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG+NOX	0.0074	--	1.10	--	--	--	0.015	0.030	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NOX	0.0016	--	--	--	0.0033	--	0.005	99.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	CO	0.16	--	--	--	0.16	--	0.3	1.0	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG	0.0058	--	1.10	--	0.0042	--	0.010	99.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG+NOX	0.0074	--	1.10	--	--	--	0.015	0.030	Pass
CA	150,000 miles	California LEV-IV SULEV30	NOX	0.0016	--	--	--	0.0033	--	0.005	99.999	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	VKMXV02.5DR3	Evaporative/Refueling Family	VKMXR0131DRG
Test #	VKMX91006733	Test Procedure	21 - Federal fuel 2-day exhaust (w/can load)
Exhaust Test # for this Evap Test	--	Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)
Test Date	03/19/2026	Fuel	Gasoline
Fuel Batch ID	43732	Fuel Calibration Number	2
Vehicle Class	LDV/Passenger Car	DF Type	Mfr. Determined
Verify Test Lab ID	--		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4779	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			

Certification Summary Information Report

Test Group	VKMXV02.5DR3	Evaporative/Refueling Family	VKMXR0131DRG																																																																																			
	<table><tr><th>Test Result Name</th><th>Unrounded Test Result</th><th>Verify Calculated FE Equivalent Value (miles per gallon)</th></tr><tr><td>CO2 BAG 1 (Bag 1 Carbon Dioxide)</td><td>307.7420349</td><td>--</td></tr><tr><td>CO BAG 1 (Bag 1 Carbon Monoxide)</td><td>0.6981723</td><td>--</td></tr><tr><td>FE BAG 1 (Bag 1 Fuel Economy)</td><td>999</td><td>--</td></tr><tr><td>CH4 BAG 1 (Bag 1 Methane)</td><td>0.007139</td><td>--</td></tr><tr><td>NMOG BAG 1 (Bag 1 Non-methane organic gases)</td><td>0.0232139</td><td>--</td></tr><tr><td>CO2 BAG 2 (Bag 2 Carbon Dioxide)</td><td>311.5274963</td><td>--</td></tr><tr><td>CO BAG 2 (Bag 2 Carbon Monoxide)</td><td>0</td><td>--</td></tr><tr><td>FE BAG 2 (Bag 2 Fuel Economy)</td><td>999</td><td>--</td></tr><tr><td>CH4 BAG 2 (Bag 2 Methane)</td><td>0.0011161</td><td>--</td></tr><tr><td>NMOG BAG 2 (Bag 2 Non-methane organic gases)</td><td>0</td><td>--</td></tr><tr><td>CO2 BAG 3 (Bag 3 Carbon Dioxide)</td><td>274.5946045</td><td>--</td></tr><tr><td>CO BAG 3 (Bag 3 Carbon Monoxide)</td><td>0</td><td>--</td></tr><tr><td>FE BAG 3 (Bag 3 Fuel Economy)</td><td>999</td><td>--</td></tr><tr><td>CH4 BAG 3 (Bag 3 Methane)</td><td>0.0018522</td><td>--</td></tr><tr><td>NMOG BAG 3 (Bag 3 Non-methane organic gases)</td><td>0</td><td>--</td></tr><tr><td>METHANE (CH4 - Methane)</td><td>0.0025639</td><td>--</td></tr><tr><td>CO (Carbon Monoxide)</td><td>0.1444254</td><td>--</td></tr><tr><td>DT-ASCR (Drive Trace Absolute Speed Change Rating)</td><td>0.7796832</td><td>--</td></tr><tr><td>DT-EER (Drive Trace Energy Economy Rating)</td><td>0.220013</td><td>--</td></tr><tr><td>DT-IWRR (Drive Trace Inertia Work Ratio Rating)</td><td>1.2169528</td><td>--</td></tr><tr><td>MFR FE (Manufacturer Fuel Economy)</td><td>999</td><td>--</td></tr><tr><td>NOX (Nitrogen Oxide)</td><td>0.0021523</td><td>--</td></tr><tr><td>N2O (Nitrous Oxide)</td><td>0.0004009</td><td>--</td></tr><tr><td>HC-NM (Non-methane Hydrocarbon)</td><td>0.0043647</td><td>--</td></tr><tr><td>NMOG (Non-methane organic gases)</td><td>0.0047931</td><td>--</td></tr><tr><td>PM (Particulate Matter)</td><td>0.0000059</td><td>--</td></tr><tr><td>HC-TOTAL (Total Hydrocarbon)</td><td>0.0063567</td><td>--</td></tr></table>	Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)	CO2 BAG 1 (Bag 1 Carbon Dioxide)	307.7420349	--	CO BAG 1 (Bag 1 Carbon Monoxide)	0.6981723	--	FE BAG 1 (Bag 1 Fuel Economy)	999	--	CH4 BAG 1 (Bag 1 Methane)	0.007139	--	NMOG BAG 1 (Bag 1 Non-methane organic gases)	0.0232139	--	CO2 BAG 2 (Bag 2 Carbon Dioxide)	311.5274963	--	CO BAG 2 (Bag 2 Carbon Monoxide)	0	--	FE BAG 2 (Bag 2 Fuel Economy)	999	--	CH4 BAG 2 (Bag 2 Methane)	0.0011161	--	NMOG BAG 2 (Bag 2 Non-methane organic gases)	0	--	CO2 BAG 3 (Bag 3 Carbon Dioxide)	274.5946045	--	CO BAG 3 (Bag 3 Carbon Monoxide)	0	--	FE BAG 3 (Bag 3 Fuel Economy)	999	--	CH4 BAG 3 (Bag 3 Methane)	0.0018522	--	NMOG BAG 3 (Bag 3 Non-methane organic gases)	0	--	METHANE (CH4 - Methane)	0.0025639	--	CO (Carbon Monoxide)	0.1444254	--	DT-ASCR (Drive Trace Absolute Speed Change Rating)	0.7796832	--	DT-EER (Drive Trace Energy Economy Rating)	0.220013	--	DT-IWRR (Drive Trace Inertia Work Ratio Rating)	1.2169528	--	MFR FE (Manufacturer Fuel Economy)	999	--	NOX (Nitrogen Oxide)	0.0021523	--	N2O (Nitrous Oxide)	0.0004009	--	HC-NM (Non-methane Hydrocarbon)	0.0043647	--	NMOG (Non-methane organic gases)	0.0047931	--	PM (Particulate Matter)	0.0000059	--	HC-TOTAL (Total Hydrocarbon)	0.0063567	--	
	Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)																																																																																			
	CO2 BAG 1 (Bag 1 Carbon Dioxide)	307.7420349	--																																																																																			
	CO BAG 1 (Bag 1 Carbon Monoxide)	0.6981723	--																																																																																			
	FE BAG 1 (Bag 1 Fuel Economy)	999	--																																																																																			
	CH4 BAG 1 (Bag 1 Methane)	0.007139	--																																																																																			
	NMOG BAG 1 (Bag 1 Non-methane organic gases)	0.0232139	--																																																																																			
	CO2 BAG 2 (Bag 2 Carbon Dioxide)	311.5274963	--																																																																																			
	CO BAG 2 (Bag 2 Carbon Monoxide)	0	--																																																																																			
	FE BAG 2 (Bag 2 Fuel Economy)	999	--																																																																																			
	CH4 BAG 2 (Bag 2 Methane)	0.0011161	--																																																																																			
	NMOG BAG 2 (Bag 2 Non-methane organic gases)	0	--																																																																																			
	CO2 BAG 3 (Bag 3 Carbon Dioxide)	274.5946045	--																																																																																			
	CO BAG 3 (Bag 3 Carbon Monoxide)	0	--																																																																																			
	FE BAG 3 (Bag 3 Fuel Economy)	999	--																																																																																			
	CH4 BAG 3 (Bag 3 Methane)	0.0018522	--																																																																																			
	NMOG BAG 3 (Bag 3 Non-methane organic gases)	0	--																																																																																			
	METHANE (CH4 - Methane)	0.0025639	--																																																																																			
	CO (Carbon Monoxide)	0.1444254	--																																																																																			
	DT-ASCR (Drive Trace Absolute Speed Change Rating)	0.7796832	--																																																																																			
	DT-EER (Drive Trace Energy Economy Rating)	0.220013	--																																																																																			
	DT-IWRR (Drive Trace Inertia Work Ratio Rating)	1.2169528	--																																																																																			
	MFR FE (Manufacturer Fuel Economy)	999	--																																																																																			
	NOX (Nitrogen Oxide)	0.0021523	--																																																																																			
	N2O (Nitrous Oxide)	0.0004009	--																																																																																			
	HC-NM (Non-methane Hydrocarbon)	0.0043647	--																																																																																			
	NMOG (Non-methane organic gases)	0.0047931	--																																																																																			
	PM (Particulate Matter)	0.0000059	--																																																																																			
	HC-TOTAL (Total Hydrocarbon)	0.0063567	--																																																																																			
		<table><tr><th>Test Result Name</th><th>Unrounded Test Result</th><th>Verify Calculated CREE/OPT-CREE</th></tr><tr><td>Carbon-Related Exhaust Emissions</td><td>9999.9999999</td><td>301</td></tr></table>	Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE	Carbon-Related Exhaust Emissions	9999.9999999	301																																																																														
	Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE																																																																																			
	Carbon-Related Exhaust Emissions	9999.9999999	301																																																																																			
		<table><tr><th>Test Result Name</th><th>Unrounded Test Result</th><th>Verify Calculated CO2</th></tr><tr><td>Carbon dioxide</td><td>300.6124268</td><td>--</td></tr></table>	Test Result Name	Unrounded Test Result	Verify Calculated CO2	Carbon dioxide	300.6124268	--																																																																														
Test Result Name	Unrounded Test Result	Verify Calculated CO2																																																																																				
Carbon dioxide	300.6124268	--																																																																																				
Manufacturer Test Comments	None Unrounded Result for the following test results were modified by Verify: FE BAG 2, MFR FE, FE BAG 3, FE BAG 1																																																																																					

Manufacturer Test Comments

None Unrounded Result for the following test results were modified by Verify: FE BAG 2, MFR FE, FE BAG 3, FE BAG 1

Certification Summary Information Report

Test Group		VKMXV02.5DR3			Evaporative/Refueling Family					VKMXR0131DRG		
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	301	--	--	--	0.204399	--	301	--	--
Fed	120,000 miles	Federal Tier 3 Bin 30	METHANE	0.0026	--	--	--	0.0019	--	0.004	0.030	Pass
Fed	120,000 miles	Federal Tier 3 Bin 30	N2O	0.0004	--	--	--	0.0011	--	0.002	0.010	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	CO	0.14	--	--	--	0.16	--	0.3	1.0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	CO-COMP	0.38	--	--	--	0	--	0.4	4.2	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG	0.0048	--	1.10	--	0.0042	--	0.009	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG+NOX	0.0070	--	--	--	--	--	0.014	0.030	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG+NOX-COMP	0.0118	--	--	--	0	--	0.012	0.030	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NOX	0.0022	--	--	--	0.0033	--	0.006	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	PM	0.0000	--	--	--	0.0000	--	0.000	0.003	Pass
CA	150,000 miles	California LEV-IV SULEV30	CO	0.14	--	--	--	0.16	--	0.3	1.0	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG	0.0048	--	1.10	--	0.0042	--	0.009	99.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG+NOX	0.0070	--	--	--	--	--	0.014	0.030	Pass
CA	150,000 miles	California LEV-IV SULEV30	NOX	0.0022	--	--	--	0.0033	--	0.006	99.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	PM	0.0000	--	--	--	0.0000	--	0.000	0.001	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	VKMXV02.5DR3	Evaporative/Refueling Family	VKMXR0131DRG
Test #	VKMX91006719	Test Procedure	3 - HWFE
Exhaust Test # for this Evap Test	--	Test Fuel Type	61 - Tier 2 Cert Gasoline
Test Date	03/05/2026	Fuel	Gasoline
Fuel Batch ID	29351	Fuel Calibration Number	1
Vehicle Class	LDV/Passenger Car	DF Type	Mfr. Determined
Verify Test Lab ID	--		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4680	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 (miles per gallon)	
METHANE (CH4 - Methane)	0.0006659	--	
CO (Carbon Monoxide)	0	--	
DT-ASCR (Drive Trace Absolute Speed Change Rating)	1.6881144	--	
DT-EER (Drive Trace Energy Economy Rating)	0.1079406	--	
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	2.0040715	--	
MFR FE (Manufacturer Fuel Economy)	46.2759247	--	
NOX (Nitrogen Oxide)	0.0007275	--	
N2O (Nitrous Oxide)	0	--	
HC-NM (Non-methane Hydrocarbon)	0	--	
NMOG (Non-methane organic gases)	0	--	
HC-TOTAL (Total Hydrocarbon)	0.0003993	--	
Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE	
Carbon-Related Exhaust Emissions	9999.9999999	193	
Test Result Name	Unrounded Test Result	Verify Calculated CO2	
Carbon dioxide	192.5939789	--	
Manufacturer Test Comments	None		

Certification Summary Information Report

Test Group		VKMXV02.5DR3			Evaporative/Refueling Family					VKMXR0131DRG		
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	193	--	--	--	0.204399	--	193	--	--
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG	0.0000	--	1.03	--	0.0042	--	0.004	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG+NOX	0.0007	--	--	--	--	--	0.008	0.030	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NOX	0.0007	--	--	--	0.0033	--	0.004	99.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG	0.0000	--	1.03	--	0.0042	--	0.004	99.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG+NOX	0.0007	--	--	--	--	--	0.008	0.030	Pass
CA	150,000 miles	California LEV-IV SULEV30	NOX	0.0007	--	--	--	0.0033	--	0.004	99.999	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	VKMXV02.5DR3	Evaporative/Refueling Family	VKMXR0131DRG
Test #	VKMX91006734	Test Procedure	3 - HWFE
Exhaust Test # for this Evap Test	--	Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)
Test Date	03/18/2026	Fuel	Gasoline
Fuel Batch ID	43732	Fuel Calibration Number	2
Vehicle Class	LDV/Passenger Car	DF Type	Mfr. Determined
Verify Test Lab ID	--		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4735	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 (miles per gallon)
METHANE (CH4 - Methane)	0.0003856	--
CO (Carbon Monoxide)	0.0035368	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	0.7255374	--
DT-EER (Drive Trace Energy Economy Rating)	0.1312458	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	0.986905	--
MFR FE (Manufacturer Fuel Economy)	45.965416	--
NOX (Nitrogen Oxide)	0.0008368	--
N2O (Nitrous Oxide)	0	--
HC-NM (Non-methane Hydrocarbon)	0	--
NMOG (Non-methane organic gases)	0	--
HC-TOTAL (Total Hydrocarbon)	0	--

Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE
Carbon-Related Exhaust Emissions	9999.9999999	189

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	189.2891083	--

Manufacturer Test Comments None

Certification Summary Information Report

Test Group		VKMXV02.5DR3			Evaporative/Refueling Family					VKMXR0131DRG		
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	189	--	--	--	0.204399	--	189	--	--
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG	0.0000	--	1.03	--	0.0042	--	0.004	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG+NOX	0.0008	--	--	--	--	--	0.008	0.030	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NOX	0.0008	--	--	--	0.0033	--	0.004	99.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG	0.0000	--	1.03	--	0.0042	--	0.004	99.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG+NOX	0.0008	--	--	--	--	--	0.008	0.030	Pass
CA	150,000 miles	California LEV-IV SULEV30	NOX	0.0008	--	--	--	0.0033	--	0.004	99.999	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	VKMXV02.5DR3	Evaporative/Refueling Family	VKMXR0131DRG
Test #	VKMX91006730	Test Procedure	90 - US06
Exhaust Test # for this Evap Test	--	Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)
Test Date	03/18/2026	Fuel	Gasoline
Fuel Batch ID	43732	Fuel Calibration Number	2
Vehicle Class	LDV/Passenger Car	DF Type	Mfr. Determined
Verify Test Lab ID	--		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4755	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			

Certification Summary Information Report

Test Group	VKM XV02.5DR3	Evaporative/Refueling Family	VKM XR0131DRG																																																																					
	<table><tr><th>Test Result Name</th><th>Unrounded Test Result</th><th>Verify Calculated FE Equivalent Value (miles per gallon)</th></tr><tr><td>CO2 BAG 1 (Bag 1 Carbon Dioxide)</td><td>490.2381592</td><td>--</td></tr><tr><td>CO BAG 1 (Bag 1 Carbon Monoxide)</td><td>0.0572021</td><td>--</td></tr><tr><td>FE BAG 1 (Bag 1 Fuel Economy)</td><td>999</td><td>--</td></tr><tr><td>CH4 BAG 1 (Bag 1 Methane)</td><td>0.0028442</td><td>--</td></tr><tr><td>NMOG BAG 1 (Bag 1 Non-methane organic gases)</td><td>0</td><td>--</td></tr><tr><td>CO2 BAG 2 (Bag 2 Carbon Dioxide)</td><td>265.040863</td><td>--</td></tr><tr><td>CO BAG 2 (Bag 2 Carbon Monoxide)</td><td>0.2329911</td><td>--</td></tr><tr><td>FE BAG 2 (Bag 2 Fuel Economy)</td><td>999</td><td>--</td></tr><tr><td>CH4 BAG 2 (Bag 2 Methane)</td><td>0.00084</td><td>--</td></tr><tr><td>NMOG BAG 2 (Bag 2 Non-methane organic gases)</td><td>0</td><td>--</td></tr><tr><td>METHANE (CH4 - Methane)</td><td>0.0012868</td><td>--</td></tr><tr><td>CO (Carbon Monoxide)</td><td>0.1938015</td><td>--</td></tr><tr><td>DT-ASCR (Drive Trace Absolute Speed Change Rating)</td><td>1.0171726</td><td>--</td></tr><tr><td>DT-EER (Drive Trace Energy Economy Rating)</td><td>-1.5198854</td><td>--</td></tr><tr><td>DT-IWRR (Drive Trace Inertia Work Ratio Rating)</td><td>3.3923833</td><td>--</td></tr><tr><td>MFR FE (Manufacturer Fuel Economy)</td><td>999</td><td>--</td></tr><tr><td>NOX (Nitrogen Oxide)</td><td>0.003422</td><td>--</td></tr><tr><td>N2O (Nitrous Oxide)</td><td>0</td><td>--</td></tr><tr><td>HC-NM (Non-methane Hydrocarbon)</td><td>0</td><td>--</td></tr><tr><td>NMOG (Non-methane organic gases)</td><td>0</td><td>--</td></tr><tr><td>PM (Particulate Matter)</td><td>0.0000113</td><td>--</td></tr><tr><td>HC-TOTAL (Total Hydrocarbon)</td><td>0.0003295</td><td>--</td></tr></table>			Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)	CO2 BAG 1 (Bag 1 Carbon Dioxide)	490.2381592	--	CO BAG 1 (Bag 1 Carbon Monoxide)	0.0572021	--	FE BAG 1 (Bag 1 Fuel Economy)	999	--	CH4 BAG 1 (Bag 1 Methane)	0.0028442	--	NMOG BAG 1 (Bag 1 Non-methane organic gases)	0	--	CO2 BAG 2 (Bag 2 Carbon Dioxide)	265.040863	--	CO BAG 2 (Bag 2 Carbon Monoxide)	0.2329911	--	FE BAG 2 (Bag 2 Fuel Economy)	999	--	CH4 BAG 2 (Bag 2 Methane)	0.00084	--	NMOG BAG 2 (Bag 2 Non-methane organic gases)	0	--	METHANE (CH4 - Methane)	0.0012868	--	CO (Carbon Monoxide)	0.1938015	--	DT-ASCR (Drive Trace Absolute Speed Change Rating)	1.0171726	--	DT-EER (Drive Trace Energy Economy Rating)	-1.5198854	--	DT-IWRR (Drive Trace Inertia Work Ratio Rating)	3.3923833	--	MFR FE (Manufacturer Fuel Economy)	999	--	NOX (Nitrogen Oxide)	0.003422	--	N2O (Nitrous Oxide)	0	--	HC-NM (Non-methane Hydrocarbon)	0	--	NMOG (Non-methane organic gases)	0	--	PM (Particulate Matter)	0.0000113	--	HC-TOTAL (Total Hydrocarbon)	0.0003295	--
Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)																																																																						
CO2 BAG 1 (Bag 1 Carbon Dioxide)	490.2381592	--																																																																						
CO BAG 1 (Bag 1 Carbon Monoxide)	0.0572021	--																																																																						
FE BAG 1 (Bag 1 Fuel Economy)	999	--																																																																						
CH4 BAG 1 (Bag 1 Methane)	0.0028442	--																																																																						
NMOG BAG 1 (Bag 1 Non-methane organic gases)	0	--																																																																						
CO2 BAG 2 (Bag 2 Carbon Dioxide)	265.040863	--																																																																						
CO BAG 2 (Bag 2 Carbon Monoxide)	0.2329911	--																																																																						
FE BAG 2 (Bag 2 Fuel Economy)	999	--																																																																						
CH4 BAG 2 (Bag 2 Methane)	0.00084	--																																																																						
NMOG BAG 2 (Bag 2 Non-methane organic gases)	0	--																																																																						
METHANE (CH4 - Methane)	0.0012868	--																																																																						
CO (Carbon Monoxide)	0.1938015	--																																																																						
DT-ASCR (Drive Trace Absolute Speed Change Rating)	1.0171726	--																																																																						
DT-EER (Drive Trace Energy Economy Rating)	-1.5198854	--																																																																						
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	3.3923833	--																																																																						
MFR FE (Manufacturer Fuel Economy)	999	--																																																																						
NOX (Nitrogen Oxide)	0.003422	--																																																																						
N2O (Nitrous Oxide)	0	--																																																																						
HC-NM (Non-methane Hydrocarbon)	0	--																																																																						
NMOG (Non-methane organic gases)	0	--																																																																						
PM (Particulate Matter)	0.0000113	--																																																																						
HC-TOTAL (Total Hydrocarbon)	0.0003295	--																																																																						
	<table><tr><th>Test Result Name</th><th>Unrounded Test Result</th><th>Verify Calculated CO2</th></tr><tr><td>Carbon dioxide</td><td>315.2453918</td><td>--</td></tr></table>			Test Result Name	Unrounded Test Result	Verify Calculated CO2	Carbon dioxide	315.2453918	--																																																															
Test Result Name	Unrounded Test Result	Verify Calculated CO2																																																																						
Carbon dioxide	315.2453918	--																																																																						
Manufacturer Test Comments	None Unrounded Result for the following test results were modified by Verify: MFR FE, FE BAG 2, FE BAG 1																																																																							

Certification Summary Information Report

Test Group		VKMXV02.5DR3			Evaporative/Refueling Family					VKMXR0131DRG		
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	0.1938	--	--	--	0.16	--	0.354	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG	0.0000	--	1.03	--	0.0042	--	0.004	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NOX	0.0034	--	--	--	0.0033	--	0.007	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	PM	0.0000	--	--	--	0.0000	--	0.000	0.006	Pass
CA	150,000 miles	California LEV-IV SULEV30	CO	0.19	--	--	--	0.16	--	0.4	9.6	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG	0.0000	--	1.03	--	0.0042	--	0.004	99.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG+NOX	0.0034	--	--	--	--	--	0.011	0.036	Pass
CA	150,000 miles	California LEV-IV SULEV30	NOX	0.0034	--	--	--	0.0033	--	0.007	99.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	PM	0.0000	--	--	--	0.0000	--	0.000	0.006	Pass

Certification Summary Information Report

Test Group	VKMXV02.5DR3	Evaporative/Refueling Family	VKMXR0131DRG																														
Test #	VKMX10092924	Test Procedure	95 - SC03																														
Exhaust Test # for this Evap Test	--	Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)																														
Test Date	12/08/2025	Fuel	Gasoline																														
Fuel Batch ID	25T-03	Fuel Calibration Number	1																														
Vehicle Class	LDV/Passenger Car	DF Type	Mfr. Determined																														
Verify Test Lab ID	772-1, Jangduck-Dong																																
E10 Evaporative Test Measurement Method	--																																
Test Start Odometer Reading	4189	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																																	
<table border="1"> <thead> <tr> <th>Test Result Name</th> <th>Unrounded Test Result</th> <th>Verify Calculated FE Equivalent Value (miles per gallon)</th> </tr> </thead> <tbody> <tr> <td>METHANE (CH4 - Methane)</td> <td>0.002</td> <td>--</td> </tr> <tr> <td>CO (Carbon Monoxide)</td> <td>0.31</td> <td>--</td> </tr> <tr> <td>DT-ASCR (Drive Trace Absolute Speed Change Rating)</td> <td>-0.37</td> <td>--</td> </tr> <tr> <td>DT-EER (Drive Trace Energy Economy Rating)</td> <td>-0.35</td> <td>--</td> </tr> <tr> <td>DT-IWRR (Drive Trace Inertia Work Ratio Rating)</td> <td>1.52</td> <td>--</td> </tr> <tr> <td>MFR FE (Manufacturer Fuel Economy)</td> <td>23.13</td> <td>23.13</td> </tr> <tr> <td>NOX (Nitrogen Oxide)</td> <td>0.0023</td> <td>--</td> </tr> <tr> <td>NMOG (Non-methane organic gases)</td> <td>0</td> <td>--</td> </tr> <tr> <td>HC-TOTAL (Total Hydrocarbon)</td> <td>0.001</td> <td>--</td> </tr> </tbody> </table>				Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)	METHANE (CH4 - Methane)	0.002	--	CO (Carbon Monoxide)	0.31	--	DT-ASCR (Drive Trace Absolute Speed Change Rating)	-0.37	--	DT-EER (Drive Trace Energy Economy Rating)	-0.35	--	DT-IWRR (Drive Trace Inertia Work Ratio Rating)	1.52	--	MFR FE (Manufacturer Fuel Economy)	23.13	23.13	NOX (Nitrogen Oxide)	0.0023	--	NMOG (Non-methane organic gases)	0	--	HC-TOTAL (Total Hydrocarbon)	0.001	--
Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)																															
METHANE (CH4 - Methane)	0.002	--																															
CO (Carbon Monoxide)	0.31	--																															
DT-ASCR (Drive Trace Absolute Speed Change Rating)	-0.37	--																															
DT-EER (Drive Trace Energy Economy Rating)	-0.35	--																															
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	1.52	--																															
MFR FE (Manufacturer Fuel Economy)	23.13	23.13																															
NOX (Nitrogen Oxide)	0.0023	--																															
NMOG (Non-methane organic gases)	0	--																															
HC-TOTAL (Total Hydrocarbon)	0.001	--																															
<table border="1"> <thead> <tr> <th>Test Result Name</th> <th>Unrounded Test Result</th> <th>Verify Calculated CO2</th> </tr> </thead> <tbody> <tr> <td>Carbon dioxide</td> <td>375.457</td> <td>--</td> </tr> </tbody> </table>				Test Result Name	Unrounded Test Result	Verify Calculated CO2	Carbon dioxide	375.457	--																								
Test Result Name	Unrounded Test Result	Verify Calculated CO2																															
Carbon dioxide	375.457	--																															
Manufacturer Test Comments	27MY DL3 2.5 8AT AWD 18inch GPF (EDV) E10 SC03																																

Certification Summary Information Report

Test Group		VKMXV02.5DR3				Evaporative/Refueling Family				VKMXR0131DRG		
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	0.3100	--	--	--	0.16	--	0.470	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG	0.0000	--	1.03	--	0.0042	--	0.004	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NOX	0.0023	--	--	--	0.0033	--	0.006	99.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	CO	0.31	--	--	--	0.16	--	0.5	1.0	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG	0.0000	--	1.03	--	0.0042	--	0.004	99.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG+NOX	0.0023	--	--	--	--	--	0.010	0.030	Pass
CA	150,000 miles	California LEV-IV SULEV30	NOX	0.0023	--	--	--	0.0033	--	0.006	99.999	Pass

Certification Summary Information Report

Test Group	VKMXV02.5DR3	Evaporative/Refueling Family	VKMXR0131DRG
Fuel Properties			
Fuel Batch ID	19E-02	Fuel Calibration Number	1
Test Fuel Type	46 - CARB LEV3 E10 Regular Gasoline	Fuel Batch Calibration Date	12/18/2018
Fuel Batch Calibration Effective Date	12/18/2018	Fuel Batch Calibration Ineffective Date	12/18/2021
Carbon Weight Fraction NMHC	--	Carbon Weight Fraction HC	--
Exhaust Carbon Weight Fraction	--	Fuel Methanol Volume Fraction	--
Fuel Density (grams/cubic ft)	--	Fuel Specific Gravity	0.751
Fuel Ethanol Volume Percent (%)	9.7	Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)	17802
Fuel Net Heat of Combustion (E10) (MJ/kg)	--	Fuel Carbon Mass Fraction (E10)	--
Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0)	0.832	Weight Fraction CO2	--
Fuel Batch ID	43732	Fuel Calibration Number	2
Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)	Fuel Batch Calibration Date	06/13/2025
Fuel Batch Calibration Effective Date	06/13/2025	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 (%)	9.6	Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)	17885
Fuel Net Heat of Combustion (E10) (MJ/kg)	41.37	Fuel Carbon Mass Fraction (E10)	0.83
Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0)	0.828	Weight Fraction CO2	--
Fuel Batch ID	25D-02	Fuel Calibration Number	1
Test Fuel Type	28 - Cold CO E10 Regular Gasoline (Tier 3)	Fuel Batch Calibration Date	06/19/2025
Fuel Batch Calibration Effective Date	07/23/2025	Fuel Batch Calibration Ineffective Date	07/23/2028
Carbon Weight Fraction NMHC	--	Carbon Weight Fraction HC	--
Exhaust Carbon Weight Fraction	--	Fuel Methanol Volume Fraction	--
Fuel Density (grams/cubic ft)	--	Fuel Specific Gravity	0.736
Fuel Ethanol Volume Percent (%)	9.8	Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)	--
Fuel Net Heat of Combustion (E10) (MJ/kg)	41.538	Fuel Carbon Mass Fraction (E10)	0.826
Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0)	--	Weight Fraction CO2	--
Fuel Batch ID	25T-03	Fuel Calibration Number	1
Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)	Fuel Batch Calibration Date	06/19/2025
Fuel Batch Calibration Effective Date	07/23/2025	Fuel Batch Calibration Ineffective Date	07/23/2028
Carbon Weight Fraction NMHC	--	Carbon Weight Fraction HC	--

Certification Summary Information Report

Test Group	VKMXV02.5DR3	Evaporative/Refueling Family	VKMXR0131DRG
Exhaust Carbon Weight Fraction	--	Fuel Methanol Volume Fraction	--
Fuel Density (grams/cubic ft)	--	Fuel Specific Gravity	0.743
Fuel Ethanol Volume Percent (%)	9.8	Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)	--
Fuel Net Heat of Combustion (E10) (MJ/kg)	41.495	Fuel Carbon Mass Fraction (E10)	0.828
Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0)	--	Weight Fraction CO2	--
Fuel Batch ID	18T-03	Fuel Calibration Number	1
Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)	Fuel Batch Calibration Date	12/10/2018
Fuel Batch Calibration Effective Date	12/11/2018	Fuel Batch Calibration Ineffective Date	12/11/2021
Carbon Weight Fraction NMHC	--	Carbon Weight Fraction HC	--
Exhaust Carbon Weight Fraction	--	Fuel Methanol Volume Fraction	--
Fuel Density (grams/cubic ft)	--	Fuel Specific Gravity	0.745
Fuel Ethanol Volume Percent (%)	10.1	Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)	17781
Fuel Net Heat of Combustion (E10) (MJ/kg)	--	Fuel Carbon Mass Fraction (E10)	--
Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0)	0.83	Weight Fraction CO2	--
Fuel Batch ID	29351	Fuel Calibration Number	1
Test Fuel Type	61 - Tier 2 Cert Gasoline	Fuel Batch Calibration Date	05/03/2023
Fuel Batch Calibration Effective Date	05/03/2023	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)	18439
Fuel Net Heat of Combustion (E10) (MJ/kg)	--	Fuel Carbon Mass Fraction (E10)	--
Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0)	0.867	Weight Fraction CO2	--
Fuel Batch ID	26757	Fuel Calibration Number	1
Test Fuel Type	46 - CARB LEV3 E10 Regular Gasoline	Fuel Batch Calibration Date	07/27/2017
Fuel Batch Calibration Effective Date	07/27/2017	Fuel Batch Calibration Ineffective Date	07/27/2032
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 (%)	9.8	Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)	17958
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	--

Certification Summary Information Report

Test Group	VKMXV02.5DR3	Evaporative/Refueling Family	VKMXR0131DRG

Certification Summary Information Report

Test Group		VKMXV02.5DR3			Evaporative/Refueling Family			VKMXR0131DRG		
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 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	--	--	--	--	--	--	0.16	99.999	
150,000 miles	NMOG	--	--	1.03	--	--	--	0.0042	99.999	
150,000 miles	NOX	--	--	--	--	--	--	0.0033	99.999	
150,000 miles	PM	--	--	--	--	--	--	0.0000	0.006	
Cert Region		Federal			Cert/In-Use Code			Cert		
Vehicle Class		LDV/Passenger Car			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	--	--	--	--	--	--	0.05	10.0	
120,000 miles	HC-NM	--	--	--	--	--	--	0.0030	0.3	
Cert Region		California + CAA Section 177 states			Cert/In-Use Code			Cert		
Vehicle Class		LDV/Passenger Car			Standard Level			California LEV-IV SULEV30		
Fuel		Gasoline			Test Procedure			Quick-Driveway (QD)		
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	--	--	1.10	--	--	--	0.0084	99.999	
150,000 miles	NMOG+NOX	--	--	1.10	--	--	--	0	0.042	
150,000 miles	NOX	--	--	--	--	--	--	0.0048	99.999	

Certification Summary Information Report

Test Group		VKMXV02.5DR3			Evaporative/Refueling Family			VKMXR0131DRG	
Cert Region		California + CAA Section 177 states			Cert/In-Use Code			Cert	
Vehicle Class		LDV/Passenger Car			Standard Level			California LEV-IV 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	--	--	--	--	--	--	0.16	9.6
150,000 miles	NMOG	--	--	1.03	--	--	--	0.0042	99.999
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0.036
150,000 miles	NOX	--	--	--	--	--	--	0.0033	99.999
150,000 miles	PM	--	--	--	--	--	--	0.0000	0.006

Cert Region		Federal			Cert/In-Use Code			Cert	
Vehicle Class		LDV/Passenger Car			Standard Level			Federal Tier 3 Bin 30	
Fuel		Gasoline			Test Procedure			CVS 75 and later (w/o can. load)	
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
120,000 miles	CREE	--	--	--	--	--	--	0	999
120,000 miles	METHANE	--	--	--	--	--	--	0.0019	0.030
120,000 miles	N2O	--	--	--	--	--	--	0.0011	0.010
150,000 miles	CO	--	--	--	--	--	--	0.16	1.0
150,000 miles	CO-COMP	--	--	--	--	--	--	0	4.2
150,000 miles	HCHO	--	--	--	--	--	--	--	0.004
150,000 miles	NMOG	--	--	1.10	--	--	--	0.0042	99.999
150,000 miles	NMOG+NOX	--	--	1.10	--	--	--	0	0.030
150,000 miles	NMOG+NOX-COMP	--	--	--	--	--	--	0	0.030
150,000 miles	NOX	--	--	--	--	--	--	0.0033	99.999
150,000 miles	PM	--	--	--	--	--	--	0.0000	0.003

Certification Summary Information Report

Test Group		VKMXV02.5DR3			Evaporative/Refueling Family			VKMXR0131DRG	
Cert Region		Federal			Cert/In-Use Code			Cert	
Vehicle Class		LDV/Passenger Car			Standard Level			Federal Tier 3 Bin 30	
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
120,000 miles	CREE	--	--	--	--	--	--	0.204399	999
120,000 miles	METHANE	--	--	--	--	--	--	0.0019	0.030
120,000 miles	N2O	--	--	--	--	--	--	0.0011	0.010
150,000 miles	CO	--	--	--	--	--	--	0.16	1.0
150,000 miles	CO-COMP	--	--	--	--	--	--	0	4.2
150,000 miles	HCHO	--	--	--	--	--	--	--	0.004
150,000 miles	NMOG	--	--	1.10	--	--	--	0.0042	99.999
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0.030
150,000 miles	NMOG+NOX-COMP	--	--	--	--	--	--	0	0.030
150,000 miles	NOX	--	--	--	--	--	--	0.0033	99.999
150,000 miles	PM	--	--	--	--	--	--	0.0000	0.003

Cert Region		California + CAA Section 177 states			Cert/In-Use Code			Cert	
Vehicle Class		LDV/Passenger Car			Standard Level			California LEV-IV SULEV30	
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	1.0
150,000 miles	HCHO	--	--	--	--	--	--	--	0.004
150,000 miles	NMOG	--	--	1.10	--	--	--	0.0042	99.999
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0.030
150,000 miles	NOX	--	--	--	--	--	--	0.0033	99.999
150,000 miles	PM	--	--	--	--	--	--	0.0000	0.001

Certification Summary Information Report

Test Group		VKMXV02.5DR3			Evaporative/Refueling Family			VKMXR0131DRG	
Cert Region		Federal			Cert/In-Use Code			Cert	
Vehicle Class		LDV/Passenger Car			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	--	--	--	--	--	--	0.16	99.999
150,000 miles	NMOG	--	--	1.03	--	--	--	0.0042	99.999
150,000 miles	NOX	--	--	--	--	--	--	0.0033	99.999

Cert Region		California + CAA Section 177 states			Cert/In-Use Code			Cert	
Vehicle Class		LDV/Passenger Car			Standard Level			California LEV-IV 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	--	--	--	--	--	--	0.05	10.0

Cert Region		California + CAA Section 177 states			Cert/In-Use Code			Cert	
Vehicle Class		LDV/Passenger Car			Standard Level			California LEV-IV SULEV30	
Fuel		Gasoline			Test Procedure			Fed. fuel 50 F exh.	
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	HCHO	--	--	--	--	--	--	--	0.008
4,000 miles	NMOG	--	--	1.10	--	--	--	0	99.999
4,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0.060
4,000 miles	NOX	--	--	--	--	--	--	0	99.999

Certification Summary Information Report

Test Group		VKMXV02.5DR3			Evaporative/Refueling Family			VKMXR0131DRG	
Cert Region		California + CAA Section 177 states			Cert/In-Use Code			Cert	
Vehicle Class		LDV/Passenger Car			Standard Level			California LEV-IV SULEV30	
Fuel		Gasoline			Test Procedure			CVS 75 and later (w/o can. load)	
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
150,000 miles	CO	--	--	--	--	--	--	0.16	1.0
150,000 miles	HCHO	--	--	--	--	--	--	--	0.004
150,000 miles	NMOG	--	--	1.10	--	--	--	0.0042	99.999
150,000 miles	NMOG+NOX	--	--	1.10	--	--	--	0	0.030
150,000 miles	NOX	--	--	--	--	--	--	0.0033	99.999
150,000 miles	PM	--	--	--	--	--	--	0.0000	0.001

Cert Region		California + CAA Section 177 states			Cert/In-Use Code			Cert	
Vehicle Class		LDV/Passenger Car			Standard Level			California LEV-IV 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	--	--	--	--	--	--	0.16	1.0
150,000 miles	NMOG	--	--	1.03	--	--	--	0.0042	99.999
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0.030
150,000 miles	NOX	--	--	--	--	--	--	0.0033	99.999

Cert Region		Federal			Cert/In-Use Code			Cert	
Vehicle Class		LDV/Passenger Car			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	--	--	--	--	--	--	0.204399	999
150,000 miles	NMOG	--	--	1.03	--	--	--	0.0042	99.999
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0.030
150,000 miles	NOX	--	--	--	--	--	--	0.0033	99.999

Certification Summary Information Report

Test Group	VKMXV02.5DR3			Evaporative/Refueling Family			VKMXR0131DRG		
Cert Region	California + CAA Section 177 states			Cert/In-Use Code			Cert		
Vehicle Class	LDV/Passenger Car			Standard Level			California LEV-IV 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
150,000 miles	NMOG	--	--	1.03	--	--	--	0.0042	99.999
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0.030
150,000 miles	NOX	--	--	--	--	--	--	0.0033	99.999

Evaporative/Refueling Standards

Evaporative/Refueling Family		VKMXR0131DRG		Cert Region		California + CAA Section 177 states	
Cert/In-Use Code		Cert		Standard Level		California LEV-IV Zero Evap (Option 2)	
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		VKMXR0131DRG	Cert Region	Federal	
Cert/In-Use Code		Cert	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	--	0.05	0

Evaporative/Refueling Family		VKMXR0131DRG		Cert Region		California + CAA Section 177 states	
Cert/In-Use Code		Cert		Standard Level		California LEV-IV Zero Evap (Option 2)	
Test Procedure		Federal fuel refueling test (ORVR)					
Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF		
Gasoline	150,000 miles	HC-TOTAL-EQUIV	--	0.20	0		

Evaporative/Refueling Family		VKMXR0131DRG		Cert Region		California + CAA Section 177 states	
Cert/In-Use Code		Cert		Standard Level		California LEV-IV Zero Evap (Option 2)	
Test Procedure		California fuel 2-day evap					
Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF		
Gasoline	150,000 miles	HC-TOTAL-EQUIV	--	0.300	0		

Certification Summary Information Report

Test Group		VKMXV02.5DR3		Evaporative/Refueling Family		VKMXR0131DRG	
Evaporative/Refueling Family		VKMXR0131DRG		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	--	0.20	0		
Evaporative/Refueling Family		VKMXR0131DRG		Cert Region		California + CAA Section 177 states	
Cert/In-Use Code		Cert		Standard Level		California LEV-IV Zero Evap (Option 2)	
Test Procedure		CA fuel 3-day evap.					
Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF		
Gasoline	150,000 miles	HC-TOTAL-EQUIV	--	0.300	0		
Evaporative/Refueling Family		VKMXR0131DRG		Cert Region		California + CAA Section 177 states	
Cert/In-Use Code		Cert		Standard Level		California LEV-IV Zero Evap (Option 2)	
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		VKMXR0131DRG		Cert Region		Federal	
Cert/In-Use Code		Cert		Standard Level		Federal Tier 3 Evap	
Test Procedure		Leak Test - Port Near Fuel Pipe					
Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF		
Gasoline	150,000 miles	LEAK-DIA	--	0.020	0		
Evaporative/Refueling Family		VKMXR0131DRG		Cert Region		California + CAA Section 177 states	
Cert/In-Use Code		Cert		Standard Level		California LEV-IV Zero Evap (Option 2)	
Test Procedure		Leak Test - Port Near Fuel Pipe					
Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF		
Gasoline	150,000 miles	LEAK-DIA	--	0.02	0		

Certification Summary Information Report

Test Group		VKMXV02.5DR3		Evaporative/Refueling Family		VKMXR0131DRG	
Evaporative/Refueling Family		VKMXR0131DRG		Cert Region		California + CAA Section 177 states	
Cert/In-Use Code		Cert		Standard Level		California LEV-IV Zero Evap (Option 2)	
Test Procedure		California Fuel Running Loss					
Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF		
Gasoline	150,000 miles	HC-TOTAL-EQUIV	--	0.01	0		
Evaporative/Refueling Family		VKMXR0131DRG		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	--	0.020	0		
Evaporative/Refueling Family		VKMXR0131DRG		Cert Region		Federal	
Cert/In-Use Code		Cert		Standard Level		Federal Tier 3 Evap	
Test Procedure		Leak Test - Port Near Canister					
Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF		
Gasoline	150,000 miles	LEAK-DIA	--	0.020	0		
Evaporative/Refueling Family		VKMXR0131DRG		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	--	0.300	0		
Evaporative/Refueling Family		VKMXR0131DRG		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	--	0.300	0		

Certification Summary Information Report

Test Group		VKMXV02.5DR3	Evaporative/Refueling Family	VKMXR0131DRG
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		VKM XV02.5DR3	Evaporative/Refueling Family		VKM XR0131DRG
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		VKM XV02.5DR3	Evaporative/Refueling Family		VKM XR0131DRG
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		VKMXV02.5DR3	Evaporative/Refueling Family		VKMXR0131DRG
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	