



Application for Certification - Part 1

Test Group (FOI)

- **Model Year:** 2027
- **Manufacturer Name:** Kia Corporation
- **Test Group:** VKMXV02.5DP7
- **Test Group Description:** 2.5 Liter / I4 Turbo GDPI / Otto-cycle
- **Durability Group:** VKMXGPGNNDP7
- **Durability Group Description:** Monolith, TWC
- **Vehicle Class:** LDV
- **Applicable Standards:** FED: Interim Tier-4 Bin70 / Tier-4 Evap
CAL: LEV-IV ULEV 70 / LEV-IV Evap
- **Vehicle Tested:** Exhaust : DL3U5H5TA049F/0
Evap : DN8U0H5GA023F/0
- **Carlines Covered by Certificate:** K5
- **EPA Response Requested by:** April 30, 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).

VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1
Issued : 03-31-2026
Revised:

02.00 Durability Group Description

1. Durability Group Name : VKMXGPGNNDP7
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 : None

VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1
Issued : 03-31-2026
Revised:

02.01 List of Vehicles in Durability Groups

Please refer to Common Section 02.01.

VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1
Issued : 03-31-2026
Revised:

03.00 Evaporative/Refueling Family Description

03.00.01 Evaporative/Refueling Family Name: VKMXR0131DPG (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

2. Basic canister design

Evap. code	Absorption flow rate (g/hr)	Nominal working capacity (g)	Size (cc)	Material	Medium	Nominal fuel tank capacity (gal)
131DPG	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:

a. Type of valve

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

7. Purge control system

- a. Type of valve: Duty
- b. Purge control strategy: Controlled by ECU
- c. High load purge system: Yes
- d. Active purge system: No

8. Vapor hose material: Rubber

9. Fuel tank material: Plastic

10. HC trap

- a. Media: Paper containing activated carbon
- b. Working capacity: 0.5g

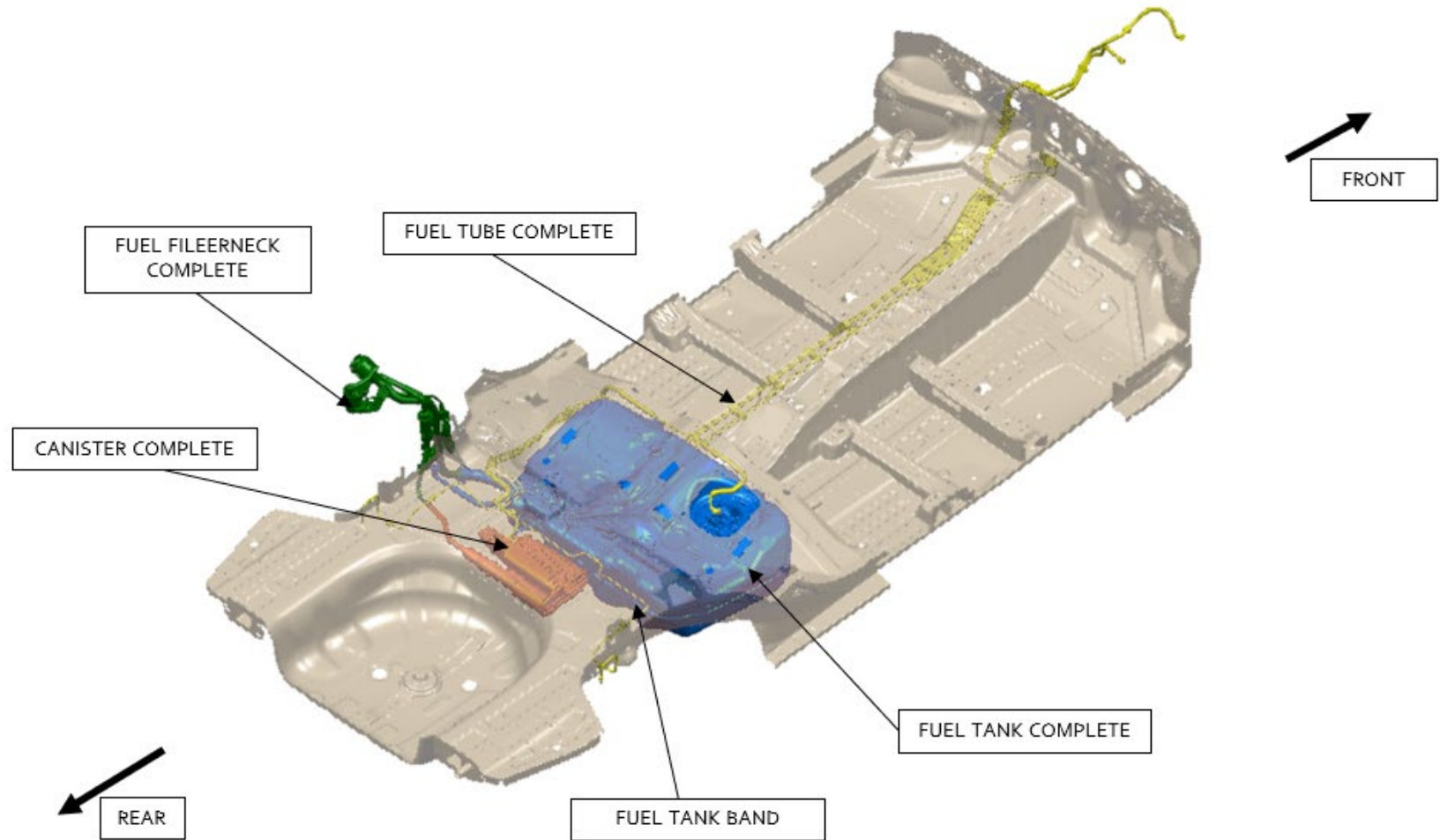
VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1

Issued : 03-31-2026

Revised:

03.00.01.02

Evaporative/Refueling Schematic

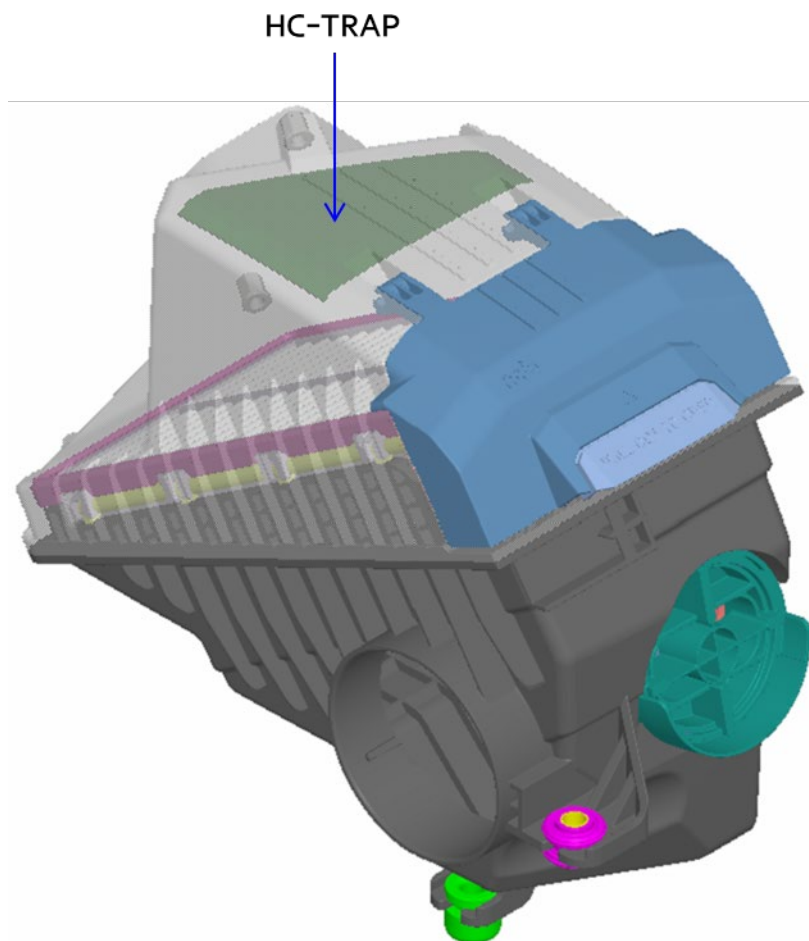


VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1

Issued : 03-31-2026

Revised:

03.00.01.03 HC-TRAP Schematic



VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1
Issued : 03-31-2026
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.

VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1
Issued : 03-31-2026
Revised:

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	:	VKMXV02.5DP7
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 70 CAL: LEV-IV ULEV 70 See CSI report for emission standard levels

VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1
Issued : 03-31-2026
Revised:

06.00 Test Vehicle Description

1. Exhaust Durability Data Vehicle

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.

TestVehicleInformationSubmission

TestVehicleInformationDetails

InformationProcessCode : N

EPAManufacturerCode : HYX

VehicleIdentificationText : N22/10-523

VehicleConfigurationNumber : 0

VehicleConfigurationDetails

VehicleDescriptionDetails

ManufacturerVehicleConfigurationNumber : 0

TestGroupName : RHYXV02.5EP5

LeakFamilyIdentifier : DN8

ModelYear : 2024

ActualTestVehicleMakeText : Hyundai

ActualTestVehicleModelText : Sonata

DriveSourceDetails

DriveSourceIdentifier : C

FuelIdentifier : G

TestDriveCode : F

ShiftIndicatorLightUsageIdentifier : 1

AgedComponentUsageIdentifier : 4

OdometerCorrectionDetails

CorrectionInitialValue : 0

CorrectionFactorValue : 1.0005

CorrectionSignIdentifier : -

CorrectionUnitsCode : M

EngineCodeText : G4KP-AMC

EngineRatedHorsepowerValue : 290

EngineDisplacementValue : 2.5

AirAspirationDetails

AirAspirationMethodIdentifier : TC

AirAspirationDeviceCount : 1

AirAspirationConfigurationIdentifier : N

VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1

Issued : 03-31-2026

Revised:

ChargeAirCoolerIdentifier : A

VehicleSpecificationsDetails

CurbWeightValue : 3620
EquivalentTestWeightValue : 3875
GrossVehicleWeightRatingValue : 4663
NVRatioValue : 25.2
AxleRatioValue : 2.94

TransmissionSpecificationsDetails

LightDutyTransmissionTypeIdentifier : AMS
TransmissionLockupIndicator : N
TransmissionCreeperGearIndicator : N
TransmissionGearCount : 8

TargetSetCoefficientDetails

TestProcedureDynamometerCoefficientsCategory : Cold-CO
TargetCoefficientAValue : 35.276
TargetCoefficientBValue : 0.19843
TargetCoefficientCValue : 0.021826
SetCoefficientAValue : 6.147
SetCoefficientBValue : 0.09599
SetCoefficientCValue : 0.021282

TargetSetCoefficientDetails

TestProcedureDynamometerCoefficientsCategory : US06
TargetCoefficientAValue : 32.069
TargetCoefficientBValue : 0.18039
TargetCoefficientCValue : 0.019842
SetCoefficientAValue : 10.702
SetCoefficientBValue : 0.10591
SetCoefficientCValue : 0.019810

TargetSetCoefficientDetails

TestProcedureDynamometerCoefficientsCategory : C-H-E
TargetCoefficientAValue : 32.069
TargetCoefficientBValue : 0.18039
TargetCoefficientCValue : 0.019842
SetCoefficientAValue : 10.702
SetCoefficientBValue : 0.10591
SetCoefficientCValue : 0.019810

ManufacturerCommentText : 24MY DN8 2.5T FWD 19in DDV

EPAGeneratedTestVehicleDetails

OriginalReceiptDate : 20230723
HybridVehicleIndicator : N

VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1
Issued : 03-31-2026
Revised:

06-2

AdjustedLoadedVehicleWeightValue : 4141
LoadedVehicleWeightValue : 3920
TotalRoadLoadHorsepowerValue : 12.1

TransactionStatusDetails

TransactionStatusIdentifier : ACCEPTED

VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1
Issued : 03-31-2026
Revised:

06-3

2. Exhaust & Evaporative Emission Data Vehicle

Please refer to CSI report in 07.00.

VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1
Issued : 03-31-2026
Revised:

07.00

Test Results

07.01

EV-CIS Certification Summary Information

Certification Summary Information Report submitted to EV-CIS.

See 18.00.00.

VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1

Issued : 03-31-2026

Revised:

2. LITMUS TEST SHEET

* Reference : §600.115-11

Litmus Test of EDV

EDV	FTP(75°F)	Cold FTP (20°F)	HFET	US06	SC03
BAG1	29.9	24.2	49.0	19.2	24.7
BAG2	27.8	25.7		35.3	
BAG3	33.7	31.7			
TOTAL	29.7			29.8	

(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	23.17410848	22.2	Applicable	
	5-CYCLE	23.88651683	23.9	Applicable	Selected
	Ratio of 5CYCLE to 0.96 MPG-BASED		107.66		
	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	33.7731	32.1	Not Applicable	
	5-CYCLE	33.0604	33.1	Select This	Selected
	MODIFIED	32.9495	32.9	Not Applicable	
	Ratio of 5CYCLE to 0.95 MPG-BASED		103.12		
CRITERIA : 100%					

VKMXV02.5DP7- Kia K5 2.5L T-GDPI - Part 1

Issued : 03-31-2026

Revised:

08.00 Emission Compliance Statement

Please refer to Common Section 08.00.

VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1
Issued : 03-31-2026
Revised:

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.

VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1
Issued : 03-31-2026
Revised:



Gavin Newsom, Governor
Yana Garcia, CalEPA Secretary
Liane M. Randolph, Chair

August 5, 2025

Reference No. E-25-236

Mr. Andrew Gear
Hyundai America Technical Center, Incorporated
6800 Geddes Road
Superior Township, Michigan 48198

Confidential

Subject: Approval of Hyundai's On-Board Diagnostics II (OBD II) System Description for the 2027 Model Year Hyundai Test Groups VHYXV02.5GP5, VHYXV02.5HP3, VHYXV02.5UP3, VHYXT02.5TP3, VHYXT02.5VP3, VHYXT02.5VR3, VHYXT02.5MP3, VHYXV02.5EP7, and VHYXV02.5ER3; and Kia Test Groups VKMXV02.5DP7, VKMXV02.5DR3, VKMXT02.5JP3, VKMXT02.5JR3, and VKMXT02.5MP3

Dear Mr. Gear:

The California Air Resources Board's (CARB) On-Board Diagnostics Branch has received the OBD II system description submitted by Hyundai/Kia for the 2027 model year test groups listed above. Representations made in the application indicate that the system is compliant with the OBD II regulation¹. Therefore, CARB approves the 2027 model year system design for the above-listed test groups with no deficiencies.

Should you have questions or comments regarding this letter, please have your staff contact Xiaoxi Liu, Air Pollution Specialist, at (951) 542-3258 or xiaoxi.liu@arb.ca.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Frederic R. Garg", followed by the word "For" in a plain font.

Michael Regenfuss, Chief, On-Board Diagnostics Branch, Emissions Certification and Compliance Division

cc: Xiaoxi Liu, Air Pollution Specialist, Emissions Certification and Compliance Division

¹ Unless otherwise noted, all regulation references are to title 13, California Code of Regulations, section 1968.2.

10.00 Description of Alternate-Fueled Vehicles: Not Applicable

VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1
Issued : 03-31-2026
Revised:

12.00 Description of Vehicles Covered by Certificate and Test Parameters

12.01 Vehicle Parameters

Carline		328
Model Name		K5
Vehicle Classification		LDV
Emission control System description	Type, number and configuration of catalyst(s)	See Sec. 02.02
	EGR Type	N/A
	Air pump type	N/A
	Fuel system type	DFI, SFI
	Intake air aspiration method	Turbocharger, Charge air cooler
	Other	-
Engine Code		G4KP-AMC
Number of valves per cylinder		4
Engine Displacement (L)		2.5
Sales area		50-State
Transmission and overdrive		AMS8
SIL		N/A
Tire		245/40R19 Pirelli
N/V Ratios		25.2
ETW(lb)		3875
Elec. Dyno. Target Coefficient		Please refer to 07.02
Fuel tank volume(gal)		15.9

VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1
 Issued : 03-31-2026
 Revised:

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.

VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1
Issued : 03-31-2026
Revised:

13.00 Projected Sales

Please refer to Common Section 13.00.

VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1
Issued : 03-31-2026
Revised:

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 VKMXV02.5DP7 /
Evaporative Family VKMXR0131DPG

Dear 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 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

VKMXT02.5MP3 - Kia Telluride– Part 1
Issued : 09-25-2025
Revised:



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

Subject: Request for Executive Order for 2027 Model Year Test Group VKMXV02.5DP7 / Evaporative Family VKMXR0131DPG

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 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 Stephanie Wright at swright@hatci.com or (734) 273-1904.

Sincerely,

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

VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1
Issued : 03-31-2026
Revised:

15.00 Other Information

15.01 Certification Fee Filing Form

VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1

Issued : 03-31-2026

Revised:

This document is an information asset of Hyundai America Technical Center, Inc and is protected by relevant laws.

15.02 Vehicle Emission Control Information (VECI) Label

	KIA CORPORATION VEHICLE EMISSION CONTROL INFORMATION	
Conforms to regulations :		2027 MY
U.S.EPA : Interim T4B70 LDV		OBD : CA II Fuel : Gasoline
California : LEV IV ULEV70 PC		OBD : CA II Fuel : Gasoline
No adjustments needed.	DFI, SFI, WR-HO2S, HO2S, TWC, TC, CAC	
Group : VKMXV02.5DP7 Evap. : VKMXR0131DPG	UG	32450-2S324

VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1

Issued : 03-31-2026

Revised:

This document is an information asset of Hyundai America Technical Center, Inc and is protected by relevant laws.

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
VKMXV02.5DP7	K5	DFI, SFI, WR-HO2S, HO2S, TWC, TC, CAC, OBD-II

Note:

DFI	: Direct Fuel Injection
SFI	: Sequential multiport Fuel Injection
WR-HO2S	: Wide Range/Linear/Air-Fuel Ratio Heated Oxygen Sensor
HO2S	: Heated Oxygen Sensor
TWC	: Three Way Catalyst System
TC	: Turbocharger
CAC	: Charge Air Cooler
OBD II	: On-Board Diagnostics II

16.02 Test Procedures

Please refer to Common Section 16.02.

VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1

Issued : 03-31-2026

Revised:

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.

VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1

Issued : 03-31-2026

Revised:

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 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.

VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1
Issued : 03-31-2026
Revised:

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.

VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1
Issued : 03-31-2026
Revised:

16.11.00 California warranty 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

VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1
Issued : 03-31-2026
Revised:

17.00.00 Service of Process

Please refer to Common Section 01.00.

VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1
Issued : 03-31-2026
Revised:

18.00.00 Attachment

1. CSI Report

VKMXV02.5DP7– Kia K5 2.5L T-GDPI – Part 1
Issued : 03-31-2026
Revised:

Certification Summary Information Report

Manufacturer	Kia Corporation	Manufacturer Code	KMX
Test Group	VKMXV02.5DP7	Evaporative/Refueling Family	VKMXR0131DPG
Certificate Number	--	CARB Executive Order #	--
Certificate Issue Date	--	Certificate Revision Date	--
Certificate Effective Date	--	Conditional Certificate	--
CSI Revision #	--	CSI Submission/Revision Date	03/17/2026 02:26:36 AM
Model Year	2027		

Test Group Information

CSI Type	New	Running Change Reference Number	--
GHG Exempt Status	Not Exempt		

Drive Sources and Fuel(s)

Drive Source #1: Combustion Engine

Fuel	Basic Fuel Metering System	Lean Burn Strategy Indicator
Gasoline	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	VKMXGPGNNDP7	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	--	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(23.9/22.2) HWY(33.1/32.1). Test No: SKMX10083327(FTP), SKMX10083328(HWY), SKMX10083015(US06), SKMX10083016(SC03), SKMX10083017(Cold).		
Mfr Exhaust / Evap Standards Comments	--		

Certification Summary Information Report

Test Group	VKM XV02.5DP7	Evaporative/Refueling Family	VKM XR0131DPG				
Evaporative/Refueling Family Information							
Evaporative Summary Information Type	New	Submission/Correction Date	03/17/2026 01:03:23 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 XR0131DPG-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	Federal	2-Wheel Drive, Front	Automated Manual-Selectable (e.g. Automated Manual with paddles)	8	No
Kia Corporation	1 - KIA	328 - K5	California + CAA Section 177 states	2-Wheel Drive, Front	Automated Manual-Selectable (e.g. Automated Manual with paddles)	8	No
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 0W-30				
Number of Cylinders/Rotors	4	Mechanically Variable Compression Ratio Indicator	N				

Certification Summary Information Report

Test Group		VKMXV02.5DP7		Evaporative/Refueling Family		VKMXR0131DPG					
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			
Mfr After Treatment Device (ATD) Comments											
		--									
Direct Ozone Reduction (DOR) Device		Not Equipped									
Mfr Emission Control Device Comments		--									
Engine Configuration Number 1											
Engine Displacement (liters)		2.5		Engine Rated Horsepower		290					
Number of Inlet Valves Per Cylinder		2		Number of Exhaust Valves Per Cylinder		2					
Air Aspiration Method		Turbocharged		Number of Air Aspiration Devices		1					
Air Aspiration Device Configuration		Single		Charge Air Cooler Type		Air					
Air Aspiration Drive Method(s)		Mechanical									
Cylinder Deactivation		No									
Cylinder Deactivation Description		--									
Variable Valve Timing		Yes									
Variable Valve Timing System Description		Fixed3(More than two or continuous)									
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		Other		Air/Fuel Sensor # 1 Description		WR-HO2S					
Air/Fuel Sensor # 2 Type		Heated oxygen		Air/Fuel Sensor # 2 Description		--					
Mfr Air/Fuel Sensor Comments		--									
Exhaust Gas Recirculation		No		Cooled Exhaust Gas Recirculation		No					
EGR Type		--		Exhaust Gas Recirculation Description if 'Other'		--					
Closed Loop Air Injection System		No		Air Injection Type if 'Other'		--					
Air Injection Type		Not Applicable									
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		SKMX10083007	SKMX10083009	SKMX10083010	SKMX10083011	SKMX10083008	27.3	228.2	40.4	286.1	--

Certification Summary Information Report

Test Group		VKMXV02.5DP7		Evaporative/Refueling Family		VKMXR0131DPG	
SFTP LEV-III Official Test Numbers							
Test Group Fuel		FTP		US06		SC03	
Gasoline		SKMX10083007		SKMX10083009		SKMX10083010	

Certification Summary Information Report

Test Group	VKMXV02.5DP7	Evaporative/Refueling Family	VKMXR0131DPG
-------------------	--------------	-------------------------------------	--------------

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 Combustion	--
Multiple Fuel Storage	--	Rechargeable Energy Storage System Indicator	--
Fuel Cell Indicator	--	Rechargeable Energy Storage System, if 'Other'	--
Rechargeable Energy Storage System	--		
Off-board charge Capable Indicator	--		
Odometer Correction -- Initial	0	Odometer Correction Factor	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	VKMXV02.5DP7	Evaporative/Refueling Family	VKMXR0131DPG						
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	VKMXV02.5DP7	Evaporative/Refueling Family	VKMXR0131DPG
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	VKMXV02.5DP7	Evaporative/Refueling Family	VKMXR0131DPG						
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	0.05	Pass	

Certification Summary Information Report

Test Group	VKMXV02.5DP7	Evaporative/Refueling Family	VKMXR0131DPG						
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	VKMXV02.5DP7	Evaporative/Refueling Family	VKMXR0131DPG					
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	VKM XV02.5DP7	Evaporative/Refueling Family	VKM XR0131DPG						
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	VKMXV02.5DP7	Evaporative/Refueling Family	VKMXR0131DPG						
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	VKMXV02.5DP7	Evaporative/Refueling Family	VKMXR0131DPG						
Emission Data Vehicle Information									
Vehicle ID / Configuration	DL3U5H5TA049F / 0	Manufacturer Vehicle Configuration Number	0						
Original Test Group Name	SKMXV02.5DP7	Original Evaporative/Refueling Family	SKMXR0133DPG						
Original Test Vehicle Model Year	2025								
Vehicle Model									
Represented Test Vehicle Make	Kia	Represented Test Vehicle Model	K5						
Leak Family Details									
Leak Family Identifier	DL3	Leak Family Name	SKMXR0133DPG-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	1.0028						
Odometer Correction Sign	- = System Miles is equal to (Test odometer reading - Initial system miles) * Correction factor								
Odometer Correction Units	Miles								
Engine Code	G4KP-AMC	Rated Horsepower	290						
Displacement (liters)	2.5								
Air Aspiration Method	Turbocharged	Air Aspiration Method, if 'Other'							
Number of Air Aspiration Devices	1	Air Aspiration Device Configuration	Single						
Charge Air Cooler Type	Air	Drive Mode While Testing	2-Wheel Drive, Front						
Shift Indicator Light Usage	Not equipped	Aged Emission Components	4,000 (mi)						
Curb Weight (lbs)	3629	Equivalent Test Weight (pounds)	3875						
GVWR (lbs)	4608	N/V Ratio	25.2						
Axle Ratio	2.94								
Transmission Type	Automated Manual- Selectable (e.g. Automated Manual with paddles)	# of Transmission Gears	8						
Transmission Lockup	No	Creep Gear	No						

Certification Summary Information Report

Test Group		VKMXV02.5DP7			Evaporative/Refueling Family		VKMXR0131DPG	
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	34.185	0.02956	0.020274	8.035	0.071	0.01919	11.5	
Cold CO	37.604	0.03252	0.022301	11.624	-0.17681	0.022804	N/A	
US06	34.185	0.02956	0.020274	8.035	0.071	0.01919	N/A	
Emission Control Device Comments		--						
Manufacturer Test Vehicle Comments		25MY DL3 PE 2.5T 8DCT FWD 19inch						

Certification Summary Information Report

Test Group	VKMXV02.5DP7	Evaporative/Refueling Family	VKMXR0131DPG
Test #	SKMX10083007	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	09/08/2023	Fuel	Gasoline
Fuel Batch ID	23T-01	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	4039	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)
CO2 BAG 1 (Bag 1 Carbon Dioxide)	290	--
FE BAG 1 (Bag 1 Fuel Economy)	28.7	28.7
CO2 BAG 2 (Bag 2 Carbon Dioxide)	309	--
FE BAG 2 (Bag 2 Fuel Economy)	27	27
CO2 BAG 3 (Bag 3 Carbon Dioxide)	252	--
FE BAG 3 (Bag 3 Fuel Economy)	33.2	33.2
CO (Carbon Monoxide)	0.39	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	0.63	--
DT-EER (Drive Trace Energy Economy Rating)	0.33	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	0.72	--
MFR FE (Manufacturer Fuel Economy)	28.7927	28.7927
NOX (Nitrogen Oxide)	0.0108	--
HC-NM (Non-methane Hydrocarbon)	0.0069	--
NMOG (Non-methane organic gases)	0.0076	--
PM (Particulate Matter)	0.0004	--
HC-TOTAL (Total Hydrocarbon)	0.015	--

Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE
Carbon-Related Exhaust Emissions	291	999

Certification Summary Information Report

Test Group		VKMXV02.5DP7			Evaporative/Refueling Family				VKMXR0131DPG			
		Test Result Name		Unrounded Test Result			Verify Calculated CO2					
		Carbon dioxide		289.5548			--					
Manufacturer Test Comments		25MY DL3 PE 2.5T FWD 19inch E10 - FTP.										
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 70	CREE	999	--	--	--	0.776480	--	1000	--	--
Fed	150,000 miles	Federal Tier 3 Bin 70	CO	0.39	--	--	--	0.34	--	0.7	1.7	Pass
Fed	150,000 miles	Federal Tier 3 Bin 70	CO-COMP	0.70	--	--	--	0	--	0.7	4.2	Pass
Fed	150,000 miles	Federal Tier 3 Bin 70	NMOG	0.0076	--	1.10	--	0.0030	--	0.011	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 70	NMOG+NOX	0.0184	--	--	--	--	--	0.031	0.070	Pass
Fed	150,000 miles	Federal Tier 3 Bin 70	NMOG+NOX-COMP	0.0270	--	--	--	0	--	0.027	0.070	Pass
Fed	150,000 miles	Federal Tier 3 Bin 70	NOX	0.0108	--	--	--	0.0095	--	0.020	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 70	PM	0.0004	--	--	--	0.0000	--	0.000	0.003	Pass
CA	150,000 miles	California LEV-IV ULEV70	CO	0.39	--	--	--	0.34	--	0.7	1.7	Pass
CA	150,000 miles	California LEV-IV ULEV70	NMOG	0.0076	--	1.10	--	0.0030	--	0.011	99.999	Pass
CA	150,000 miles	California LEV-IV ULEV70	NMOG+NOX	0.0184	--	--	--	--	--	0.031	0.070	Pass
CA	150,000 miles	California LEV-IV ULEV70	NOX	0.0108	--	--	--	0.0095	--	0.020	99.999	Pass
CA	150,000 miles	California LEV-IV ULEV70	PM	0.0004	--	--	--	0.0000	--	0.000	0.003	Pass
NOTE: For Non-charge depleting tests, the Rounded Result for CREE/OPT-CREE Emission names are Verify-calculated values.												

Certification Summary Information Report

Test Group	VKMXV02.5DP7	Evaporative/Refueling Family	VKMXR0131DPG
Test #	SKMX10083011	Test Procedure	11 - Cold CO
Exhaust Test # for this Evap Test	--	Test Fuel Type	28 - Cold CO E10 Regular Gasoline (Tier 3)
Test Date	09/16/2023	Fuel	Gasoline
Fuel Batch ID	22D-01	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	4240	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)
CO2 BAG 1 (Bag 1 Carbon Dioxide)	349	--
FE BAG 1 (Bag 1 Fuel Economy)	24.6	24.6
CO2 BAG 2 (Bag 2 Carbon Dioxide)	337	--
FE BAG 2 (Bag 2 Fuel Economy)	25.6	25.6
CO2 BAG 3 (Bag 3 Carbon Dioxide)	269	--
FE BAG 3 (Bag 3 Fuel Economy)	32.1	32.1
CO (Carbon Monoxide)	0.52	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	0.89	--
DT-EER (Drive Trace Energy Economy Rating)	0.53	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	1.21	--
MFR FE (Manufacturer Fuel Economy)	26.8772	26.8772
NOX (Nitrogen Oxide)	0.0164	--
HC-NM (Non-methane Hydrocarbon)	0.0694	--
HC-TOTAL (Total Hydrocarbon)	0.084	--

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	320.6945	--

Manufacturer Test Comments

25MY DL3 PE 2.5T FWD 19inch E10 - 20F

Certification Summary Information Report

Test Group		VKMXV02.5DP7				Evaporative/Refueling Family				VKMXR0131DPG		
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 70	CO	0.52	--	--	--	0.11	--	0.6	10.0	Pass
Fed	120,000 miles	Federal Tier 3 Bin 70	HC-NM	0.07	--	--	--	0.0021	--	0.1	0.3	Pass
CA	50,000 miles	California LEV-IV ULEV70	CO	0.52	--	--	--	0.11	--	0.6	10.0	Pass

Certification Summary Information Report

Test Group	VKMXV02.5DP7	Evaporative/Refueling Family	VKMXR0131DPG
Test #	SKMX10083012	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	09/14/2023	Fuel	Gasoline
Fuel Batch ID	23T-01	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	4173	Odometer Units	M
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	--		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
CO (Carbon Monoxide)	0.38	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	0.16	--
DT-EER (Drive Trace Energy Economy Rating)	0.54	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	0.02	--
MFR FE (Manufacturer Fuel Economy)	28.9868	28.9868
NOX (Nitrogen Oxide)	0.0087	--
HC-NM (Non-methane Hydrocarbon)	0.0286	--
NMOG (Non-methane organic gases)	0.0315	--
HC-TOTAL (Total Hydrocarbon)	0.038	--

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	288.3622	--

Manufacturer Test Comments

25MY DL3 PE 2.5T FWD 19inch E10 - 50F

Certification Summary Information Report

Test Group		VKMXV02.5DP7				Evaporative/Refueling Family				VKMXR0131DPG		
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 ULEV70	CO	0.38	--	--	--	--	--	0.4	1.7	Pass
CA	4,000 miles	California LEV-IV ULEV70	NMOG	0.0315	--	1.10	--	--	--	0.032	99.999	Pass
CA	4,000 miles	California LEV-IV ULEV70	NMOG+NOX	0.0402	--	--	--	--	--	0.040	0.140	Pass
CA	4,000 miles	California LEV-IV ULEV70	NOX	0.0087	--	--	--	--	--	0.009	99.999	Pass

Certification Summary Information Report

Test Group	VKMXV02.5DP7	Evaporative/Refueling Family	VKMXR0131DPG
Test #	SKMX10083327	Test Procedure	21 - Federal fuel 2-day exhaust (w/can load)
Exhaust Test # for this Evap Test	--	Test Fuel Type	61 - Tier 2 Cert Gasoline
Test Date	11/13/2023	Fuel	Gasoline
Fuel Batch ID	22M-01	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	4532	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)
CO2 BAG 1 (Bag 1 Carbon Dioxide)	297	--
FE BAG 1 (Bag 1 Fuel Economy)	29.9	29.9
CO2 BAG 2 (Bag 2 Carbon Dioxide)	321	--
FE BAG 2 (Bag 2 Fuel Economy)	27.8	27.8
CO2 BAG 3 (Bag 3 Carbon Dioxide)	264	--
FE BAG 3 (Bag 3 Fuel Economy)	33.7	33.7
METHANE (CH4 - Methane)	0.0071	--
CO (Carbon Monoxide)	0.33	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	1.33	--
DT-EER (Drive Trace Energy Economy Rating)	0.87	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	1.74	--
MFR FE (Manufacturer Fuel Economy)	29.6719	29.6719
NOX (Nitrogen Oxide)	0.0123	--
N2O (Nitrous Oxide)	0.0006	--
HC-NM (Non-methane Hydrocarbon)	0.0089	--
NMOG (Non-methane organic gases)	0.0093	--
HC-TOTAL (Total Hydrocarbon)	0.016	--

Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE
Carbon-Related Exhaust Emissions	301	301

Certification Summary Information Report

Test Group		VKMXV02.5DP7			Evaporative/Refueling Family				VKMXR0131DPG			
		Test Result Name		Unrounded Test Result			Verify Calculated CO2					
		Carbon dioxide		300.2092			--					
Manufacturer Test Comments		25MY DL3 PE 2.5T FWD 19inch E0 Normal - FTP(MCT)										
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 70	CREE	301	--	--	--	0.776480	--	302	--	--
Fed	120,000 miles	Federal Tier 3 Bin 70	METHANE	0.0071	--	--	--	0.0052	--	0.012	0.030	Pass
Fed	120,000 miles	Federal Tier 3 Bin 70	N2O	0.0006	--	--	--	0.0015	--	0.002	0.010	Pass
Fed	150,000 miles	Federal Tier 3 Bin 70	CO	0.33	--	--	--	0.34	--	0.7	1.7	Pass
Fed	150,000 miles	Federal Tier 3 Bin 70	NMOG	0.0093	--	1.10	--	0.0030	--	0.012	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 70	NMOG+NOX	0.0216	--	--	--	--	--	0.034	0.070	Pass
Fed	150,000 miles	Federal Tier 3 Bin 70	NOX	0.0123	--	--	--	0.0095	--	0.022	99.999	Pass
CA	150,000 miles	California LEV-IV ULEV70	CO	0.33	--	--	--	0.34	--	0.7	1.7	Pass
CA	150,000 miles	California LEV-IV ULEV70	NMOG	0.0093	--	1.10	--	0.0030	--	0.012	99.999	Pass
CA	150,000 miles	California LEV-IV ULEV70	NMOG+NOX	0.0216	--	--	--	--	--	0.034	0.070	Pass
CA	150,000 miles	California LEV-IV ULEV70	NOX	0.0123	--	--	--	0.0095	--	0.022	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	VKMXV02.5DP7	Evaporative/Refueling Family	VKMXR0131DPG
Test #	SKMX10083008	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	09/08/2023	Fuel	Gasoline
Fuel Batch ID	23T-01	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	4050	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)
CO (Carbon Monoxide)	0.12	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	-2.78	--
DT-EER (Drive Trace Energy Economy Rating)	-0.34	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	-3.05	--
MFR FE (Manufacturer Fuel Economy)	47.4992	47.4992
NOX (Nitrogen Oxide)	0.0019	--
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	176	999

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	175.7471	--

Manufacturer Test Comments 25MY DL3 PE 2.5T FWD 19inch E10 - HWY.

Certification Summary Information Report

Test Group		VKMXV02.5DP7			Evaporative/Refueling Family					VKMXR0131DPG		
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 70	CREE	999	--	--	--	0.776480	--	1000	--	--
Fed	150,000 miles	Federal Tier 3 Bin 70	NMOG	0.0000	--	1.03	--	0.0030	--	0.003	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 70	NMOG+NOX	0.0019	--	--	--	--	--	0.014	0.070	Pass
Fed	150,000 miles	Federal Tier 3 Bin 70	NOX	0.0019	--	--	--	0.0095	--	0.011	99.999	Pass
CA	150,000 miles	California LEV-IV ULEV70	NMOG	0.0000	--	1.03	--	0.0030	--	0.003	99.999	Pass
CA	150,000 miles	California LEV-IV ULEV70	NMOG+NOX	0.0019	--	--	--	--	--	0.014	0.070	Pass
CA	150,000 miles	California LEV-IV ULEV70	NOX	0.0019	--	--	--	0.0095	--	0.011	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	VKMXV02.5DP7	Evaporative/Refueling Family	VKMXR0131DPG																														
Test #	SKMX10083328	Test Procedure	3 - HWFE																														
Exhaust Test # for this Evap Test	--	Test Fuel Type	61 - Tier 2 Cert Gasoline																														
Test Date	11/13/2023	Fuel	Gasoline																														
Fuel Batch ID	22M-01	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	4543	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>CO (Carbon Monoxide)</td> <td>0.11</td> <td>--</td> </tr> <tr> <td>DT-ASCR (Drive Trace Absolute Speed Change Rating)</td> <td>-2.36</td> <td>--</td> </tr> <tr> <td>DT-EER (Drive Trace Energy Economy Rating)</td> <td>-0.55</td> <td>--</td> </tr> <tr> <td>DT-IWRR (Drive Trace Inertia Work Ratio Rating)</td> <td>-2.53</td> <td>--</td> </tr> <tr> <td>MFR FE (Manufacturer Fuel Economy)</td> <td>48.956</td> <td>48.956</td> </tr> <tr> <td>NOX (Nitrogen Oxide)</td> <td>0.0024</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>HC-TOTAL (Total Hydrocarbon)</td> <td>0</td> <td>--</td> </tr> </tbody> </table>				Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)	CO (Carbon Monoxide)	0.11	--	DT-ASCR (Drive Trace Absolute Speed Change Rating)	-2.36	--	DT-EER (Drive Trace Energy Economy Rating)	-0.55	--	DT-IWRR (Drive Trace Inertia Work Ratio Rating)	-2.53	--	MFR FE (Manufacturer Fuel Economy)	48.956	48.956	NOX (Nitrogen Oxide)	0.0024	--	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 FE Equivalent Value (miles per gallon)																															
CO (Carbon Monoxide)	0.11	--																															
DT-ASCR (Drive Trace Absolute Speed Change Rating)	-2.36	--																															
DT-EER (Drive Trace Energy Economy Rating)	-0.55	--																															
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	-2.53	--																															
MFR FE (Manufacturer Fuel Economy)	48.956	48.956																															
NOX (Nitrogen Oxide)	0.0024	--																															
HC-NM (Non-methane Hydrocarbon)	0	--																															
NMOG (Non-methane organic gases)	0	--																															
HC-TOTAL (Total Hydrocarbon)	0	--																															
<table border="1"> <thead> <tr> <th>Test Result Name</th> <th>Unrounded Test Result</th> <th>Verify Calculated CREE/OPT-CREE</th> </tr> </thead> <tbody> <tr> <td>Carbon-Related Exhaust Emissions</td> <td>182</td> <td>182</td> </tr> </tbody> </table>				Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE	Carbon-Related Exhaust Emissions	182	182																								
Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE																															
Carbon-Related Exhaust Emissions	182	182																															
<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>181.7201</td> <td>--</td> </tr> </tbody> </table>				Test Result Name	Unrounded Test Result	Verify Calculated CO2	Carbon dioxide	181.7201	--																								
Test Result Name	Unrounded Test Result	Verify Calculated CO2																															
Carbon dioxide	181.7201	--																															
Manufacturer Test Comments	25MY DL3 PE 2.5T FWD 19inch E0 Normal - HWY(MCT)																																

Certification Summary Information Report

Test Group		VKMXV02.5DP7			Evaporative/Refueling Family					VKMXR0131DPG		
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 70	CREE	182	--	--	--	0.776480	--	183	--	--
Fed	150,000 miles	Federal Tier 3 Bin 70	NMOG	0.0000	--	1.03	--	0.0030	--	0.003	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 70	NMOG+NOX	0.0024	--	--	--	--	--	0.015	0.070	Pass
Fed	150,000 miles	Federal Tier 3 Bin 70	NOX	0.0024	--	--	--	0.0095	--	0.012	99.999	Pass
CA	150,000 miles	California LEV-IV ULEV70	NMOG	0.0000	--	1.03	--	0.0030	--	0.003	99.999	Pass
CA	150,000 miles	California LEV-IV ULEV70	NMOG+NOX	0.0024	--	--	--	--	--	0.015	0.070	Pass
CA	150,000 miles	California LEV-IV ULEV70	NOX	0.0024	--	--	--	0.0095	--	0.012	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	VKMXV02.5DP7	Evaporative/Refueling Family	VKMXR0131DPG
Test #	SKMX10083009	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	09/08/2023	Fuel	Gasoline
Fuel Batch ID	23T-01	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	4070	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)
CO2 BAG 1 (Bag 1 Carbon Dioxide)	472	--
FE BAG 1 (Bag 1 Fuel Economy)	17.7	17.7
CO2 BAG 2 (Bag 2 Carbon Dioxide)	251	--
FE BAG 2 (Bag 2 Fuel Economy)	33.3	33.3
CO (Carbon Monoxide)	0.45	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	-1.22	--
DT-EER (Drive Trace Energy Economy Rating)	-0.8	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	-1.61	--
MFR FE (Manufacturer Fuel Economy)	27.8299	27.8299
NOX (Nitrogen Oxide)	0.0076	--
HC-NM (Non-methane Hydrocarbon)	0.001	--
NMOG (Non-methane organic gases)	0.001	--
PM (Particulate Matter)	0.0005	--
HC-TOTAL (Total Hydrocarbon)	0.002	--

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	299.7254	--

Manufacturer Test Comments

25MY DL3 PE 2.5T FWD 19inch E10 - US06.

Certification Summary Information Report

Test Group		VKMXV02.5DP7				Evaporative/Refueling Family				VKMXR0131DPG		
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 70	CO	0.4500	--	--	--	0.34	--	0.790	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 70	NMOG	0.0010	--	1.03	--	0.0030	--	0.004	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 70	NMOG+NOX	0.0086	--	--	--	--	--	0.021	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 70	NOX	0.0076	--	--	--	0.0095	--	0.017	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 70	PM	0.0005	--	--	--	0.0000	--	0.000	0.006	Pass
CA	150,000 miles	California LEV-IV ULEV70	CO	0.45	--	--	--	0.34	--	0.8	9.6	Pass
CA	150,000 miles	California LEV-IV ULEV70	NMOG	0.0010	--	1.03	--	0.0030	--	0.004	99.999	Pass
CA	150,000 miles	California LEV-IV ULEV70	NMOG+NOX	0.0086	--	--	--	--	--	0.021	0.084	Pass
CA	150,000 miles	California LEV-IV ULEV70	NOX	0.0076	--	--	--	0.0095	--	0.017	99.999	Pass
CA	150,000 miles	California LEV-IV ULEV70	PM	0.0005	--	--	--	0.0000	--	0.000	0.006	Pass

Certification Summary Information Report

Test Group	VKMXV02.5DP7	Evaporative/Refueling Family	VKMXR0131DPG
Test #	SKMX10083010	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	09/13/2023	Fuel	Gasoline
Fuel Batch ID	23T-01	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	4159	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)
CO (Carbon Monoxide)	0.26	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	-0.37	--
DT-EER (Drive Trace Energy Economy Rating)	0.53	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	-0.32	--
MFR FE (Manufacturer Fuel Economy)	23.7467	23.7467
NOX (Nitrogen Oxide)	0.0148	--
HC-NM (Non-methane Hydrocarbon)	0.0006	--
NMOG (Non-methane organic gases)	0.0006	--
HC-TOTAL (Total Hydrocarbon)	0.004	--

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	352.0583	--

Manufacturer Test Comments

25MY DL3 PE 2.5T FWD 19inch E10 - SC03.

Certification Summary Information Report

Test Group		VKMXV02.5DP7				Evaporative/Refueling Family				VKMXR0131DPG		
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 70	CO	0.2600	--	--	--	0.34	--	0.600	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 70	NMOG	0.0006	--	1.03	--	0.0030	--	0.004	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 70	NMOG+NOX	0.0154	--	--	--	--	--	0.028	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 70	NOX	0.0148	--	--	--	0.0095	--	0.024	99.999	Pass
CA	150,000 miles	California LEV-IV ULEV70	CO	0.26	--	--	--	0.34	--	0.6	1.7	Pass
CA	150,000 miles	California LEV-IV ULEV70	NMOG	0.0006	--	1.03	--	0.0030	--	0.004	99.999	Pass
CA	150,000 miles	California LEV-IV ULEV70	NMOG+NOX	0.0154	--	--	--	--	--	0.028	0.070	Pass
CA	150,000 miles	California LEV-IV ULEV70	NOX	0.0148	--	--	--	0.0095	--	0.024	99.999	Pass

Certification Summary Information Report

Test Group	VKMXV02.5DP7	Evaporative/Refueling Family	VKMXR0131DPG
Fuel Properties			
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	23T-01	Fuel Calibration Number	1
Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)	Fuel Batch Calibration Date	09/29/2022
Fuel Batch Calibration Effective Date	08/07/2023	Fuel Batch Calibration Ineffective Date	08/07/2026
Carbon Weight Fraction NMHC	--	Carbon Weight Fraction HC	--
Exhaust Carbon Weight Fraction	--	Fuel Methanol Volume Fraction	--
Fuel Density (grams/cubic ft)	--	Fuel Specific Gravity	0.74
Fuel Ethanol Volume Percent (%)	9.9	Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)	18779
Fuel Net Heat of Combustion (E10) (MJ/kg)	--	Fuel Carbon Mass Fraction (E10)	--
Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0)	0.824	Weight Fraction CO2	--
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	22D-01	Fuel Calibration Number	1
Test Fuel Type	28 - Cold CO E10 Regular Gasoline (Tier 3)	Fuel Batch Calibration Date	07/29/2021
Fuel Batch Calibration Effective Date	05/10/2022	Fuel Batch Calibration Ineffective Date	05/10/2025
Carbon Weight Fraction NMHC	--	Carbon Weight Fraction HC	--

Certification Summary Information Report

Test Group	VKMXV02.5DP7	Evaporative/Refueling Family	VKMXR0131DPG
Exhaust Carbon Weight Fraction	--	Fuel Methanol Volume Fraction	--
Fuel Density (grams/cubic ft)	--	Fuel Specific Gravity	0.742
Fuel Ethanol Volume Percent (%)	9.9	Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)	17925
Fuel Net Heat of Combustion (E10) (MJ/kg)	--	Fuel Carbon Mass Fraction (E10)	--
Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0)	0.828	Weight Fraction CO2	--
Fuel Batch ID	22M-01	Fuel Calibration Number	1
Test Fuel Type	61 - Tier 2 Cert Gasoline	Fuel Batch Calibration Date	06/03/2021
Fuel Batch Calibration Effective Date	02/14/2022	Fuel Batch Calibration Ineffective Date	02/14/2025
Carbon Weight Fraction NMHC	--	Carbon Weight Fraction HC	--
Exhaust Carbon Weight Fraction	--	Fuel Methanol Volume Fraction	--
Fuel Density (grams/cubic ft)	--	Fuel Specific Gravity	0.743
Fuel Ethanol Volume Percent (%)	--	Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)	18435
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		VKMXV02.5DP7			Evaporative/Refueling Family		VKMXR0131DPG				
Consolidated List of Standards											
Exhaust Standards											
Cert Region		California + CAA Section 177 states			Cert/In-Use Code		Cert				
Vehicle Class		LDV/Passenger Car			Standard Level		California LEV-IV ULEV70				
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		--	--	--	--	--	--	0.34	1.7
150,000 miles		HCHO		--	--	--	--	--	--	--	0.004
150,000 miles		NMOG		--	--	1.10	--	--	--	0.0030	99.999
150,000 miles		NMOG+NOX		--	--	--	--	--	--	0	0.070
150,000 miles		NOX		--	--	--	--	--	--	0.0095	99.999
150,000 miles		PM		--	--	--	--	--	--	0.0000	0.003
Cert Region		Federal			Cert/In-Use Code		Cert				
Vehicle Class		LDV/Passenger Car			Standard Level		Federal Tier 3 Bin 70				
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		--	--	--	--	--	--	0.776480	999
150,000 miles		NMOG		--	--	1.03	--	--	--	0.0030	99.999
150,000 miles		NMOG+NOX		--	--	--	--	--	--	0	0.070
150,000 miles		NOX		--	--	--	--	--	--	0.0095	99.999
Cert Region		California + CAA Section 177 states			Cert/In-Use Code		Cert				
Vehicle Class		LDV/Passenger Car			Standard Level		California LEV-IV ULEV70				
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	--	--	--	0.0030	99.999
150,000 miles		NMOG+NOX		--	--	--	--	--	--	0	0.070
150,000 miles		NOX		--	--	--	--	--	--	0.0095	99.999

Certification Summary Information Report

Test Group		VKMXV02.5DP7			Evaporative/Refueling Family			VKMXR0131DPG	
Cert Region		Federal			Cert/In-Use Code			Cert	
Vehicle Class		LDV/Passenger Car			Standard Level			Federal Tier 3 Bin 70	
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	--	--	--	--	--	--	0.34	99.999
150,000 miles	NMOG	--	--	1.03	--	--	--	0.0030	99.999
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	99.999
150,000 miles	NOX	--	--	--	--	--	--	0.0095	99.999

Cert Region		Federal			Cert/In-Use Code			Cert	
Vehicle Class		LDV/Passenger Car			Standard Level			Federal Tier 3 Bin 70	
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	--	--	--	--	--	--	0.776480	999
120,000 miles	METHANE	--	--	--	--	--	--	0.0052	0.030
120,000 miles	N2O	--	--	--	--	--	--	0.0015	0.010
150,000 miles	CO	--	--	--	--	--	--	0.34	1.7
150,000 miles	CO-COMP	--	--	--	--	--	--	0	4.2
150,000 miles	HCHO	--	--	--	--	--	--	--	0.004
150,000 miles	NMOG	--	--	1.10	--	--	--	0.0030	99.999
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0.070
150,000 miles	NMOG+NOX-COMP	--	--	--	--	--	--	0	0.070
150,000 miles	NOX	--	--	--	--	--	--	0.0095	99.999
150,000 miles	PM	--	--	--	--	--	--	0.0000	0.003

Certification Summary Information Report

Test Group	VKMXV02.5DP7				Evaporative/Refueling Family			VKMXR0131DPG	
Cert Region	California + CAA Section 177 states				Cert/In-Use Code			Cert	
Vehicle Class	LDV/Passenger Car				Standard Level			California LEV-IV ULEV70	
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	--	--	--	--	--	--	--	1.7
4,000 miles	HCHO	--	--	--	--	--	--	--	0.016
4,000 miles	NMOG	--	--	1.10	--	--	--	--	99.999
4,000 miles	NMOG+NOX	--	--	--	--	--	1	--	0.140
4,000 miles	NOX	--	--	--	--	--	--	--	99.999
Cert Region	Federal				Cert/In-Use Code			Cert	
Vehicle Class	LDV/Passenger Car				Standard Level			Federal Tier 3 Bin 70	
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	--	--	--	--	--	--	0.34	99.999
150,000 miles	NMOG	--	--	1.03	--	--	--	0.0030	99.999
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	99.999
150,000 miles	NOX	--	--	--	--	--	--	0.0095	99.999
150,000 miles	PM	--	--	--	--	--	--	0.0000	0.006
Cert Region	California + CAA Section 177 states				Cert/In-Use Code			Cert	
Vehicle Class	LDV/Passenger Car				Standard Level			California LEV-IV ULEV70	
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	--	--	--	--	--	--	0.34	9.6
150,000 miles	NMOG	--	--	1.03	--	--	--	0.0030	99.999
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0.084
150,000 miles	NOX	--	--	--	--	--	--	0.0095	99.999
150,000 miles	PM	--	--	--	--	--	--	0.0000	0.006

Certification Summary Information Report

Test Group	VKMXV02.5DP7				Evaporative/Refueling Family			VKMXR0131DPG	
Cert Region	California + CAA Section 177 states				Cert/In-Use Code			Cert	
Vehicle Class	LDV/Passenger Car				Standard Level			California LEV-IV ULEV70	
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	--	--	--	--	--	--	0.34	1.7
150,000 miles	NMOG	--	--	1.03	--	--	--	0.0030	99.999
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0.070
150,000 miles	NOX	--	--	--	--	--	--	0.0095	99.999

Cert Region	Federal				Cert/In-Use Code			Cert	
Vehicle Class	LDV/Passenger Car				Standard Level			Federal Tier 3 Bin 70	
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	--	--	--	--	--	--	0.11	10.0
120,000 miles	HC-NM	--	--	--	--	--	--	0.0021	0.3

Cert Region	California + CAA Section 177 states				Cert/In-Use Code			Cert	
Vehicle Class	LDV/Passenger Car				Standard Level			California LEV-IV ULEV70	
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	--	--	--	--	--	--	0.11	10.0

Evaporative/Refueling Standards

Evaporative/Refueling Family		VKMXR0131DPG		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	

Certification Summary Information Report

Test Group		VKMXV02.5DP7		Evaporative/Refueling Family		VKMXR0131DPG	
Evaporative/Refueling Family		VKMXR0131DPG		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		VKMXR0131DPG		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		VKMXR0131DPG		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		VKMXR0131DPG		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		VKMXR0131DPG		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	--	0.05	0		

Certification Summary Information Report

Test Group		VKMXV02.5DP7		Evaporative/Refueling Family		VKMXR0131DPG	
Evaporative/Refueling Family		VKMXR0131DPG		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		VKMXR0131DPG		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		VKMXR0131DPG		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		VKMXR0131DPG		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		
Evaporative/Refueling Family		VKMXR0131DPG		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		

Certification Summary Information Report

Test Group		VKMXV02.5DP7		Evaporative/Refueling Family		VKMXR0131DPG					
Evaporative/Refueling Family		VKMXR0131DPG		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	
Evaporative/Refueling Family		VKMXR0131DPG		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		VKMXR0131DPG		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		VKMXV02.5DP7	Evaporative/Refueling Family	VKMXR0131DPG
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 XV02.5DP7	Evaporative/Refueling Family		VKM XR0131DPG
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 XV02.5DP7	Evaporative/Refueling Family		VKM XR0131DPG
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		VKMXV02.5DP7	Evaporative/Refueling Family		VKMXR0131DPG
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	