



Application for Certification - Part 1

Test Group (CBI)

- **Model Year:** 2027
- **Manufacturer Name:** Hyundai Motor Company
- **Test Group:** VHYXT01.6M13
- **Test Group Description:** 1.6 Liter / I4 Turbocharged GDI / Otto-cycle
- **Durability Group:** VHYXHHGNNM13
- **Durability Group Description:** Monolith, WU-TWC + TWC
- **Vehicle Class:** FED: LDT2
CAL: PC
- **Applicable Standards:** FED: Interim Tier-4 Bin 30 / Tier-4 Evap
CAL: LEV-IV SULEV 30 / LEV-IV Evap
- **Vehicles Tested:** Exh EDV: MX5U4G6HA148A/0
Evap EDV: MQ4U1G6HA581F/0
FEDV: MX5U4G6HA147F/0, MX5U4G6HA147F/1,
MX5U4G6HA148A/1
- **Carlines Covered by Certificate:** Santa Fe Hybrid AWD, Santa Fe Hybrid FWD
- **EPA Response Requested by:** April 30, 2026
- **For Questions, Contact:** Stephanie Wright
734-273-1904
E-mail: swright@hatci.com

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01.00 Correspondence and Communications

Please refer to Common Section 01.00.

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

02.00 Durability Group Description

1. Durability Group Name : VHYXHHGNNM13
2. Combustion Cycle : Otto cycle / four stroke
3. Engine Type : Piston / water cooled
4. Fuel Used : Gasoline
5. Basic Fuel Metering System : Direct 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
11. Battery Capacity(s) : 5.5Ah
12. Battery Chemistry(s) : NCM(Nickel Cobalt Manganese, Li(NiCoMn)O₂)
13. Battery Duty Cycle Usage(s) : 20 years / 300,000km
14. Battery Manufacturer : Hyundai Mobis (SK ON*¹, LG ES)
15. Battery Construction : 9 modules with 8 cells each (72 cells in total)
16. Battery Self-Discharge Information : < 3.0% @SOC60%, RT for 6 months
17. Description of the Thermal Management System
The thermal management system for the 40 is an air-cooling system, in which cabin air is blower through an inlet duct by cooling fan mounted in battery pack and expelled to outside through an outlet duct.
18. Battery Disposal Plan : Please refer to Common Section 02.00

*1) Tested battery

02.01 List of Vehicles in Durability Groups

Please refer to Common Section 02.01.

03.00 Evaporative/Refueling Family Description

03.00.01 Evaporative/Refueling Family Name: VHYXR0137M1G (C/O 21MY Sorento Hybrid)

03.00.01.01 Evaporative/Refueling Family Parameters

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

2. Basic canister design

Evap. code	Absorption flow rate (g/hr)	Nominal working capacity (g)	Size (cc)	Material	Medium	Nominal fuel tank capacity (gal)
137M1G	15	137	2400	Plastic	Activated Carbon	17.7

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. Fill Limit Vent valve (ORVR)
- b. Overfill Limiter (2way valve)
- c. Canister close valve

7. Purge control system

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

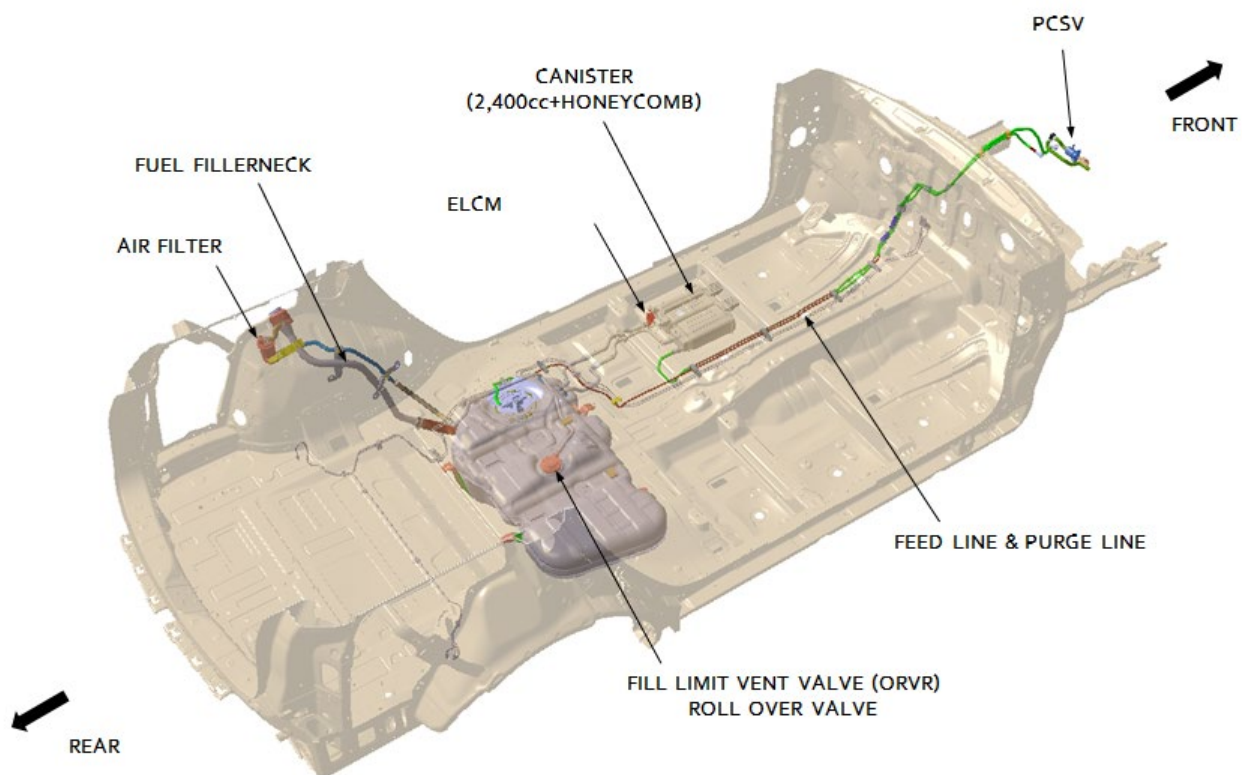
8. Vapor hose material: Rubber

9. Fuel tank material: Plastic

10. HC-Trap:

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

03.00.01.02 Evaporative/Refueling Schematic

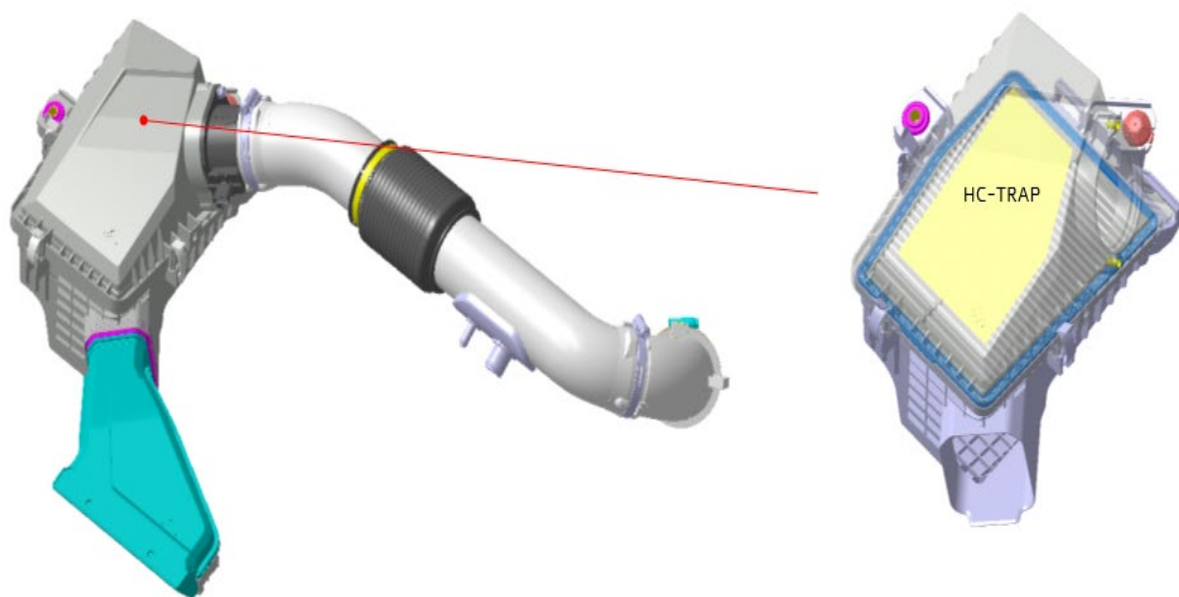


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Revised:

03.00.01.03 HC-TRAP Schematic



03.01 Evaporative/Refueling General Description

Please refer to Common Section 03.01.

03.02 List of Vehicles in Evaporative Families

Please refer to Common Section 03.02.

04.03 Exhaust Durability Test Procedure

Please refer to Common Section 04.03 for details.

04.04 Evaporative Durability Test Procedure

Please refer to Common Section 04.04.

05.00 Test Group Description

Test group name	:	VHYXT01.6M13
Engine displacement covered	:	1.6 L
Electric motor capacity	:	47.7 kW @1800~2100rpm
Voltage	:	270 V
Type and size of electric motor	:	Permanent magnet synchronous motor 3.82 L
Battery capacity	:	5.5 Ah
Voltage and type of battery technology	:	270 V, Lithium Ion battery
Arrangement/Number of Cylinders	:	I4
Vehicle Class(s) Covered	:	LDT2 / LDV
Sales Location/Emission Standard	:	FED : Interim Tier-4 Bin 30 CAL: LEV-IV SULEV 30 See CSI report for emission standard levels

VHYXT01.6M13- Hyundai Santa Fe Hybrid 1.6L T-GDI – Part 1
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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.

Test Vehicle Information Submission

Test Vehicle Information Details

Information Process Code : C
EPA Manufacturer Code : HYX
Vehicle Identification Text : 5NMS21A1BN1P98405
Vehicle Configuration Number : 0

Vehicle Configuration Details

Vehicle Description Details

Manufacturer Vehicle Configuration Number : 0
Test Group Name : RHYXV01.6M13
Evaporative Refueling Family Name : RHYXR0137M1G
Leak Family Identifier : MXH
Leak Family Name : RHYXR0137M1G-MXH
Model Year : 2024
Actual Test Vehicle Make Text : HYUNDAI
Actual Test Vehicle Model Text : SANTA FE HYBRID

Drive Source Details

Drive Source Identifier : E
Fuel Identifier : EL

Drive Source Details

Drive Source Identifier : C
Fuel Identifier : G

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

Odometer Correction Details

Correction Initial Value : 10
Correction Factor Value : 1.0165
Correction Sign Identifier : -
Correction Units Code : M

Engine Code Text : G4FT-AC
Engine Rated Horsepower Value : 178
Engine Displacement Value : 1.6

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Air Aspiration Details

Air Aspiration Method Identifier : TC
Air Aspiration Device Count : 1
Air Aspiration Configuration Identifier : N

Charge Air Cooler Identifier : A

Vehicle Specifications Details

Curb Weight Value : 4532
Equivalent Test Weight Value : 4750
Gross Vehicle Weight Rating Value : 5799
NV Ratio Value : 32.3
Axle Ratio Value : 3.51

Transmission Specifications Details

Light Duty Transmission Type Identifier : AMS
Transmission Lockup Indicator : N
Transmission Creeper Gear Indicator : N
Transmission Gear Count : 6

Target Set Coefficient Details

Test Procedure Dynamometer Coefficients Category : C-H-E
Target CoefficientA Value : 39.616
Target CoefficientB Value : 0.19265
Target CoefficientC Value : 0.025583
Set CoefficientA Value : 15.719
Set CoefficientB Value : 0.14134
Set CoefficientC Value : 0.024753

Target Set Coefficient Details

Test Procedure Dynamometer Coefficients Category : Cold-CO
Target CoefficientA Value : 43.578
Target CoefficientB Value : 0.21191
Target CoefficientC Value : 0.028141
Set CoefficientA Value : 14.328
Set CoefficientB Value : 0.09642
Set CoefficientC Value : 0.027517

Target Set Coefficient Details

Test Procedure Dynamometer Coefficients Category : US06
Target CoefficientA Value : 39.616
Target CoefficientB Value : 0.19265
Target CoefficientC Value : 0.025583
Set CoefficientA Value : 15.719
Set CoefficientB Value : 0.14134
Set CoefficientC Value : 0.024753

Manufacturer Comment Text : DDV Vehicle ID. Transmission type is corrected to AMS.

EPA Generated Test Vehicle Details

Original Receipt Date : 20231211
Hybrid Vehicle Indicator : Y
Adjusted Loaded Vehicle Weight Value : 5165
Loaded Vehicle Weight Value : 4832
Total Road Load Horsepower Value : 15.1

Transaction Status Details

Transaction Status Identifier : ACCEPTED

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Revised:

2. Exhaust & Evaporative Emission Data Vehicle

Please refer to CSI report in 07.00.

07.00 Test Results
07.01 EV-CIS Certification Summary Information

Certification Summary Information Report submitted to EV-CIS.

See 18.00.00.

2. LITMUS TEST SHEET

* Reference : §600.115-11

Litmus Test of EDV

EDV	FTP(75°F)	Cold FTP (20°F)	HFET	US06	SC03
BAG1	32.4	21.9	45.0	20.0	33.6
BAG2	84.9	45.9		35.8	
BAG3	31.9	31.9			
BAG4	69.7				
TOTAL	45.7			30.4	

(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	33.9258	32.6	Applicable	
	5-CYCLE	34.1754	34.2	Applicable	Selected
	Ratio of 5CYCLE to 0.96 MPG-BASED		104.91		

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	31.2914	29.7	Not Applicable	
	5-CYCLE	33.2811	33.3	Select This	Selected
	MODIFIED	33.0627	33.1	Not Applicable	
	Ratio of 5CYCLE to 0.95 MPG-BASED		112.12		

CRITERIA : 100%

08.00 Emission Compliance Statement

Please refer to Common Section 08.00.

09.00 OBD System Description

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

Please refer to OBD application uploaded in EV-CIS system.

10.00 Description of Alternate-Fueled Vehicles: Not Applicable

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12.00 Description of Vehicles Covered by Certificate and Test Parameters
12.01 Vehicle Parameters

Carline		58	59
Model Name		Santa Fe Hybrid AWD	Santa Fe Hybrid FWD
Vehicle Classification (FED/CAL)		LDT/LDV	LDT/LDV
Emission control System description	Type, number and configuration of catalyst(s)	See Sec. 02.02	See Sec. 02.02
	EGR Type	Electronic	Electronic
	Air pump type	N/A	N/A
	Fuel system type	DFI	DFI
	Intake air aspiration method	Turbocharger, Charge Air Cooler	Turbocharger, Charge Air Cooler
	Other	-	-
Engine Code		G4FT-AC	G4FT-AC
Number of valves per cylinder		4	4
Engine Displacement (L)		1.6	1.6
Sales area		50-State	50-State
Transmission and overdrive		AMS6 (Overdrive)	AMS6 (Overdrive)
SIL		N/A	N/A
Tire		255/45R20 (PIRELLI*1/ KUMHO) 235/60R18 (GOODYEAR*1/ KUMHO / NEXEN)	255/45R20 (PIRELLI*1/ KUMHO) 235/60R18 (GOODYEAR*1/ KUMHO / NEXEN)
N/V Ratios		32.3	32.3
ETW(lb)		4750	4750 (20" tire) 4500 (18" tire)
Elec. Dyno. Target Coefficient		Please refer to 12.02.01.	Please refer to 12.02.01.
Fuel tank volume(gal)		17.7	17.7

*1) tested tire

12.02.02 Engine Starting Procedures

Please refer to Common Section 12.02.02.

12.02.03 Shift Schedules

Please refer to Common Section 12.02.03.01

12.02.04 Transmission / Advanced Technology System Test Modes

Please refer to Common Section 12.02.04.

13.00 Projected Sales

Please refer to Common Section 13.00.

14.00 Request for Certification



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

Subject: Request for Certificate of Conformity for 2027 Model Year Test Group
VHYXT01.6M13/Evaporative Family VHYXR0137M1G

Dear Ms. Kathryn Kochunas:

Hyundai Motor Company requests that EPA issue a Certificate of Conformity for test group subjected above.

All vehicles within the test group mentioned above comply with the applicable regulations contained in 40 CFR86.1844-01(d), (14) including the provisions of 40 CFR Parts 85, 86 and 600. This test group also complies with 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,

A handwritten signature in black ink, appearing to read 'C.H. Ji', written over a horizontal line.

C.H.Ji
General Manager
Regulation & Certification Team 2
Hyundai Motor Company

VHYXT01.6M13- Hyundai Santa Fe Hybrid 1.6L T-GDI – Part 1
Issued : 03-30-2026
Revised:



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

Subject: Request for Executive Order for 2027 Model Year Test Group
VHYXT01.6M13/Evaporative Family VHYXR0137M1G

Dear Ms. Robin U. Lang:

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

All vehicles within the test group mentioned above comply with the applicable regulations contained in 40 CFR86.1844-01(d), (14) including the provisions of 40 CFR Parts 85, 86 and 600. This test group also complies with California Air Resources Board, Final Regulation Order, Sections 1961.4 and 1961.3 (1962.4 and 1962.3 for zero-emission vehicles) Title 13, California Code of Regulations.

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

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

Sincerely,

A handwritten signature in black ink, appearing to read 'C.H. Ji', written over a horizontal line.

C.H.Ji
General Manager
Regulation & Certification Team 2
Hyundai Motor Company

VHYXT01.6M13- Hyundai Santa Fe Hybrid 1.6L T-GDI – Part 1
Issued : 03-30-2026
Revised:

15.00 Other Information
15.01 Certification Fee Filing Form

US EPA Fee Form

[Help and EPA Instructions](#)

* Required Field

General Information

Date: 03/03/2026

Process Code *

Submit New Fee Filing Form

Manufacturer Code *

HYX

Manufacturer Name *

Hyundai

Contact Name *

Jennifer Cherry

Contact Email Address *

jcherry@hatci.com

Contact Phone *

7343372259

Calendar Year complete application submitted
to EPA *

2026

PLEASE NOTE: These fees apply to complete certification applications received by EPA from January 1, 2026, through December 31, 2026. The applicable fee is determined by the

calendar year in which the complete certification application is received, not the model year.

Engine Family / Evaporative Family / Test Group *

VHYXT01.6M13

Certificate Request Type (Industry Sector Code)

Certificate Request Type *

- ☒ On-Highway LDV, LTD, MDVPV, HDV Chassis Cert (Federal) (A, B, D, J, T, V)
- ☐ On-Highway HDE Dyno Cert (Federal) (E, H)
- ☐ On-Highway LD ICI, MDPV ICI, HDV ICI (A, B, D, J, T, V)
- ☐ On-Highway Motorcycle (C)
- ☐ On-Highway HDV Evap (F)
- ☐ On-Highway LDV, LTD, MDVPV, HDV Chassis Cert (California-Only) (A, B, D, J, T, V)
- ☐ On-Highway HDE Dyno Cert (California-Only) (E, H)
- ☐ Nonroad CI (L)
- ☐ Nonroad SI (B, S)
- ☐ Locomotive (G, K)
- ☐ All Nonroad Recreational, excluding Marine engines (X, Y)
- ☐ All Marine (Including IMO) (M, N, W)
- ☐ Component Certification for Evaporative Emissions (P)

IMO Name (Required for dual US/IMO Marine Only)

ICI VIN Number (Required for ICIs Only)

Do you qualify for a Reduced Fee? *

No

Payment Information

Amount Owed

\$32,317.00

Payment Type *

Offline Wire

Comments

EPA Form Number 3520-29

OMB Control No.2060-0545

Approval expires 7/31/2027

The public reporting and recordkeeping burden for this collection of information is estimated to average 12 minutes per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed forms to this address.

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

15.02 Vehicle Emission Control Information (VECI) Label

			HYUNDAI MOTOR COMPANY VEHICLE EMISSION CONTROL INFORMATION		
Conforms to regulations:			2027 MY		
U.S.EPA: Interim T4B30 LDT			OBD: CA II		Fuel: Gasoline
California: LEV IV SULEV30 PC			OBD: CA II		Fuel: Gasoline
No adjustments needed.			DFI, WR-HO2S, HO2S, WU-TWC, TWC, TC, CAC, EGR, EGRC		
Group: VHYXT01.6M13			32459-2MMX4		
Evap.: VHYXR0137M1G					

VHYXT01.6M13- Hyundai Santa Fe Hybrid 1.6L T-GDI – Part 1

Issued : 03-30-2026

Revised:

15.03 ORVR Safety Statement

Hyundai uses standard technology in all ORVR systems for 2027 model year 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
VHYXT01.6M13	Santa Fe Hybrid AWD Santa Fe Hybrid FWD	DFI, WR-HO2S, HO2S, WU-TWC, TWC, TC, CAC, EGR, EGRC, OBD-II

Note:

DFI	: Direct Fuel Injection
WR-HO2S	: Wide Range/Linear/Air-Fuel Ratio Heated Oxygen Sensor
HO2S	: Heated Oxygen Sensor
WU-TWC	: Warm up Three Way Catalyst System
TWC	: Three Way Catalyst System
TC	: Turbocharger
CAC	: Charge Air Cooler
EGR	: Exhaust Gas Recirculation
EGRC	: EGR Cooler
OBD II	: On-Board Diagnostics II

(use abbreviations per SAE J1930 Oct 08)

16.02 Test Procedures

Please refer to Common Section 16.02.

16.03.00 Fill Pipe Access Zones Statement and Specifications

16.03.01 Fill Pipe Access Zones Statement

Please refer to Common Section 16.03.01.

16.04.00 Request for Certificate

Please refer to 14.00.

16.04.01 Statement of Compliance

Please refer to Common Section 16.04.01.

16.04.02 Supplemental Data Sheet

Please refer to E-cert data.

16.05.00 Emission Testing Waiver Statement

Please refer to Common Section 16.05.00.

16.06.00 Projected Sales

Please refer to Common Section 13.00.

16.07.00 OBD-II System Description

Please refer to section 09.00.

16.08.00 New Technology System Description

Please refer to Common Section 15.04.

16.09.00 Environmental Performance Label

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

16.10.00 AECD General Statements

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

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

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

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

16.11.00 California 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

17.00.00 Service of Process

Please refer to Common Section 01.00.

18.00.00 Attachment

1. CSI Report

Certification Summary Information Report

Manufacturer	Hyundai Motor Company	Manufacturer Code	HYX
Test Group	VHYXT01.6M13	Evaporative/Refueling Family	VHYXR0137M1G
Certificate Number	--	CARB Executive Order #	--
Certificate Issue Date	--	Certificate Revision Date	--
Certificate Effective Date	--	Conditional Certificate	--
CSI Revision #	--	CSI Submission/Revision Date	03/31/2026 09:54:48 PM
Model Year	2027		

Certification Summary Information Report

Test Group	VHYXT01.6M13	Evaporative/Refueling Family	VHYXR0137M1G
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Test Group Information

CSI Type	Update for Correction	Running Change Reference Number	--
GHG Exempt Status	Not Exempt		

Drive Sources and Fuel(s)

Drive Source #1: Combustion Engine

Fuel	Basic Fuel Metering System	Lean Burn Strategy Indicator
Gasoline	Spark Ignition Direct fuel injection	No

Drive Source #2: Electric Motor

Fuel	Basic Fuel Metering System	Lean Burn Strategy Indicator
Electricity	--	--

Hybrid Indicator	Yes		
Multiple Fuel Storage	--	Rechargeable Energy Storage System Indicator	Yes
Multiple Fuel Combustion	--	Off-board Charge Capable Indicator	No
Fuel Cell Indicator	No	EPA Vehicle Class	LDT2
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	VHYXHHGNNM13	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	VKMXJ01.6P13
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(34.2/32.6) HWY(33.3/29.7). Test No: RHYX10082583(FTP),RHYX10082577(US06),RHYX10082578(SC03),RHYX10082579(Cold CO),RHYX10082576(HWFE)		
Mfr Exhaust / Evap Standards Comments	--		

Certification Summary Information Report

Test Group	VHYXT01.6M13	Evaporative/Refueling Family	VHYXR0137M1G				
Evaporative/Refueling Family Information							
Evaporative Summary Information Type	New	Submission/Correction Date	03/16/2026 02:19:21 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)	137	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				
VHYXR0137M1G-MXH	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
Hyundai Motor Company	1 - HYUNDAI MOTOR COMPANY	59 - Santa Fe Hybrid FWD	California + CAA Section 177 states	2-Wheel Drive, Front	Automated Manual-Selectable (e.g. Automated Manual with paddles)	6	No
Hyundai Motor Company	1 - HYUNDAI MOTOR COMPANY	58 - Santa Fe Hybrid AWD	California + CAA Section 177 states	All Wheel Drive	Automated Manual-Selectable (e.g. Automated Manual with paddles)	6	No
Hyundai Motor Company	1 - HYUNDAI MOTOR COMPANY	59 - Santa Fe Hybrid FWD	Federal	2-Wheel Drive, Front	Automated Manual-Selectable (e.g. Automated Manual with paddles)	6	No
Hyundai Motor Company	1 - HYUNDAI MOTOR COMPANY	58 - Santa Fe Hybrid AWD	Federal	All Wheel Drive	Automated Manual-Selectable (e.g. Automated Manual with paddles)	6	No

Certification Summary Information Report

Test Group	VHYXT01.6M13	Evaporative/Refueling Family	VHYXR0137M1G	
Engine Description				
Hybrid Type	IC Engine/Electric Motor	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-20, API SN PLUS	
Number of Cylinders/Rotors	4	Mechanically Variable Compression Ratio Indicator	N	
After Treatment Device(s) (ATD)				
ATD Number	ATD Type	ATD Precious Metal	Substrate Material	Substrate Construction
1	Three-way catalyst	Platinum + Palladium + Rhodium	Ceramic	Monolith
2	Three-way catalyst	Platinum + 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)	1.6	Engine Rated Horsepower	178	
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	Fixed 3 (Continuous Variable Valve Timing)			
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	Yes	Cooled Exhaust Gas Recirculation	Yes	
EGR Type	Electronic/Electric	Exhaust Gas Recirculation Description if 'Other'	--	
Closed Loop Air Injection System	No			
Air Injection Type	--	Air Injection Type if 'Other'	--	
Mfr Engine Configuration Comments	--			

Certification Summary Information Report

Test Group		VHYXT01.6M13		Evaporative/Refueling Family		VHYXR0137M1G				
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	RHYX10082549	RHYX10082551	RHYX10082554	RHYX10082552	RHYX10082550	33.6	228.2	34.1	286.1	--
Electricity	--	--	--	--	--	--	--	--	--	--
SFTP LEV-III Official Test Numbers										
Test Group Fuel	FTP		US06		SC03					
Electricity	--		--		--					
Gasoline	RHYX10082549		RHYX10082551		RHYX10082554					
Official Charge Depleting Test Numbers										
Test Group Fuel	UDDS		Highway							
Electricity	--		--							
Hybrid Electric Vehicle And Fuel Cell Information										
Rechargeable Energy Storage System	Battery(s)		Rechargeable Energy Storage System, if Other		--					
Battery Type	Lithium Ion		Number of Battery Packs		1					
Total Voltage of Battery Packs	270		Battery Energy Capacity		5.5					
Battery Specific Energy	40.1		Battery Charger Type		On-Board					
Number of Capacitors	--		Capacitor Rating (In Farads)		--					
Mfr Capacitor Comments	--									
Hydraulic System Description	Battery Cells are supplied from SKON and LGES. Battery Specific Energy is 40.1 Whr/kg for SKON Cell and 40.0 Whr/kg for LGEs Cell.									
Regenerative Braking Type	Electrical Regen Brake									
Regenerative Braking Source	Front Wheels		Driver Controlled Regenerative Braking		Yes					
Mfr Regenerative Braking Description	--									
Drive Motor(s)/Generator(s)	1		Rated Motor/Generator Power		48					
Motor/Generator Type 1	PMSM		Usable H2 Fill Capacity (kg)		--					
Mfr Fuel Cell Description	--									
Fuel Cell On-Board H2 Storage Capacity (kg)	--		Usable H2 Fill Capacity (kg)		--					
Mfr Hybrid Electric/ Electric Vehicle Comments	--									

Certification Summary Information Report

Test Group	VHYXT01.6M13	Evaporative/Refueling Family	VHYXR0137M1G
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Emission Data Vehicle Information

Vehicle ID / Configuration	MX5U4G6HA148A / 0	Manufacturer Vehicle Configuration Number	0
Original Test Group Name	RHYXV01.6M13	Original Evaporative/Refueling Family	RHYXR0137M1G
Original Test Vehicle Model Year	2024		

Vehicle Model

Represented Test Vehicle Make	HYUNDAI	Represented Test Vehicle Model	SANTA FE HYBRID
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Leak Family Details

Leak Family Identifier	MXH	Leak Family Name	RHYXR0137M1G-MXH
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Drive Sources and Fuel System Details

Drive Source and Fuel#	Drive Source	Fuel
1	Electric Motor	Electricity
2	Combustion Engine	Gasoline

Hybrid Indicator	Yes		
Multiple Fuel Storage	--	Multiple Fuel Combustion	--
Fuel Cell Indicator	No	Rechargeable Energy Storage System Indicator	Yes
Rechargeable Energy Storage System	Battery(s)	Rechargeable Energy Storage System, if 'Other'	--
Off-board charge Capable Indicator	No		
Odometer Correction -- Initial	10	Odometer Correction Factor	1.0165
Odometer Correction Sign	- = System Miles is equal to (Test odometer reading - Initial system miles) * Correction factor		
Odometer Correction Units	Miles		
Engine Code	G4FT-AC	Rated Horsepower	178
Displacement (liters)	1.6		
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)	4532	Equivalent Test Weight (pounds)	4750
GVWR (lbs)	5799	N/V Ratio	32.3
Axle Ratio	3.51		
Transmission Type	Automated Manual- Selectable (e.g. Automated Manual with paddles)	# of Transmission Gears	6
Transmission Lockup	No	Creep Gear	No

Certification Summary Information Report

Test Group		VHYXT01.6M13			Evaporative/Refueling Family		VHYXR0137M1G	
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	39.616	0.19265	0.025583	15.719	0.14134	0.024753	15.1	
Cold CO	43.578	0.21191	0.028141	14.328	0.09642	0.027517	N/A	
US06	39.616	0.19265	0.025583	15.719	0.14134	0.024753	N/A	
Emission Control Device Comments		--						
Manufacturer Test Vehicle Comments		24MY MX5a HEV AWD 20inch. Rated horse power is corrected to 178 hp. Transmission type is corrected to AMS.						

Certification Summary Information Report

Test Group	VHYXT01.6M13	Evaporative/Refueling Family	VHYXR0137M1G
Test #	RHYX10082549	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	08/17/2023	Fuel	Gasoline
Fuel Batch ID	23T-01	Fuel Calibration Number	1
Vehicle Class	LDT2 (LVW 3751-5750, GVW 0-6000), LDV/Passenger Car	DF Type	Mfr. Determined
Verify Test Lab ID	772-1, Jangduck-Dong		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4122	Odometer Units	M
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
CO2 BAG 1 (Bag 1 Carbon Dioxide)	267	--
FE BAG 1 (Bag 1 Fuel Economy)	31.3	31.3
CO2 BAG 2 (Bag 2 Carbon Dioxide)	176	--
FE BAG 2 (Bag 2 Fuel Economy)	47.5	47.5
CO2 BAG 3 (Bag 3 Carbon Dioxide)	286	--
FE BAG 3 (Bag 3 Fuel Economy)	29.2	29.2
CO2 BAG 4 (Bag 4 Carbon Dioxide)	132	--
FE BAG 4 (Bag 4 Fuel Economy)	63.4	63.4
METHANE (CH4 - Methane)	0.0023	--
CO (Carbon Monoxide)	0.0728	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	1.44	--
DT-EER (Drive Trace Energy Economy Rating)	1.33	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	2.01	--
MFR FE (Manufacturer Fuel Economy)	39.4512	39.4512
NOX (Nitrogen Oxide)	0.0021	--
HC-NM (Non-methane Hydrocarbon)	0.0046	--
NMOG (Non-methane organic gases)	0.0051	--
PM (Particulate Matter)	0.0006	--
HC-TOTAL (Total Hydrocarbon)	0.0069	--

Certification Summary Information Report

Test Group		VHYXT01.6M13			Evaporative/Refueling Family				VHYXR0137M1G			
		Test Result Name		Unrounded Test Result		Verify Calculated CREE/OPT-CREE						
		Carbon-Related Exhaust Emissions		212		999						
		Test Result Name		Unrounded Test Result		Verify Calculated CO2						
		Carbon dioxide		212.0611		--						
Manufacturer Test Comments		24MY MX5a HEV AWD 20inch 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 30	CREE	999	--	--	--	0.229467	--	999	--	--
Fed	120,000 miles	Federal Tier 3 Bin 30	METHANE	0.0023	--	--	--	0.0014	--	0.004	0.030	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	CO	0.07	--	--	--	0.22	--	0.3	1.0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	CO-COMP	0.29	--	--	--	0	--	0.3	4.2	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG	0.0051	--	1.10	--	0.0036	--	0.009	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG+NOX	0.0072	--	--	--	--	--	0.012	0.030	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG+NOX-COMP	0.0126	--	--	--	0	--	0.013	0.030	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NOX	0.0021	--	--	--	0.0016	--	0.004	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	PM	0.0006	--	--	--	0.0000	--	0.001	0.003	Pass
CA	150,000 miles	California LEV-IV SULEV30	CO	0.07	--	--	--	0.22	--	0.3	1.0	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG	0.0051	--	1.10	--	0.0036	--	0.009	99.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG+NOX	0.0072	--	--	--	--	--	0.012	0.030	Pass
CA	150,000 miles	California LEV-IV SULEV30	NOX	0.0021	--	--	--	0.0016	--	0.004	99.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	PM	0.0006	--	--	--	0.0000	--	0.001	0.001	Pass
NOTE: For Non-charge depleting tests, the Rounded Result for CREE/OPT-CREE Emission names are Verify-calculated values.												

Certification Summary Information Report

Test Group	VHYXT01.6M13	Evaporative/Refueling Family	VHYXR0137M1G
Test #	RHYX10082552	Test Procedure	11 - Cold CO
Exhaust Test # for this Evap Test	--	Test Fuel Type	28 - Cold CO E10 Regular Gasoline (Tier 3)
Test Date	08/15/2023	Fuel	Gasoline
Fuel Batch ID	22D-01	Fuel Calibration Number	1
Vehicle Class	LDT2 (LVW 3751-5750, GVW 0-6000), LDV/Passenger Car	DF Type	Mfr. Determined
Verify Test Lab ID	772-1, Jangduck-Dong		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4053	Odometer Units	M
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
CO2 BAG 1 (Bag 1 Carbon Dioxide)	440	--
FE BAG 1 (Bag 1 Fuel Economy)	19.6	19.6
CO2 BAG 2 (Bag 2 Carbon Dioxide)	319	--
FE BAG 2 (Bag 2 Fuel Economy)	27.1	27.1
CO2 BAG 3 (Bag 3 Carbon Dioxide)	300	--
FE BAG 3 (Bag 3 Fuel Economy)	28.8	28.8
CO (Carbon Monoxide)	0.2013	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	0.33	--
DT-EER (Drive Trace Energy Economy Rating)	0.55	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	-3.43	--
MFR FE (Manufacturer Fuel Economy)	25.5039	25.5039
NOX (Nitrogen Oxide)	0.0061	--
HC-NM (Non-methane Hydrocarbon)	0.0279	--
HC-TOTAL (Total Hydrocarbon)	0.0331	--

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	338.7149	--

Manufacturer Test Comments

24MY MX5a HEV AWD 20inch E10 - 20F

Certification Summary Information Report

Test Group		VHYXT01.6M13				Evaporative/Refueling Family				VHYXR0137M1G		
Certification Region	Useful Life	Standard Level	Emission Name	Rounded Result	RAF	NMOG/NM HC Ratio	Diesel Adjustment Factor	Add DF	Mult DF	Certification Level	Standard	Pass/Fail
Fed	50,000 miles	Federal Tier 3 Bin 30	CO	0.20	--	--	--	0.07	--	0.3	12.5	Pass
Fed	120,000 miles	Federal Tier 3 Bin 30	HC-NM	0.03	--	--	--	0.0025	--	0.0	0.3	Pass
CA	50,000 miles	California LEV-IV SULEV30	CO	0.20	--	--	--	0.07	--	0.3	10.0	Pass

Certification Summary Information Report

Test Group	VHYXT01.6M13	Evaporative/Refueling Family	VHYXR0137M1G
Test #	RHYX10082553	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	09/12/2023	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	4687	Odometer Units	M
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
CO (Carbon Monoxide)	0.1029	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	2.35	--
DT-EER (Drive Trace Energy Economy Rating)	1.9	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	3.66	--
MFR FE (Manufacturer Fuel Economy)	36.0429	36.0429
NOX (Nitrogen Oxide)	0.0024	--
HC-NM (Non-methane Hydrocarbon)	0.0078	--
NMOG (Non-methane organic gases)	0.0086	--
HC-TOTAL (Total Hydrocarbon)	0.0114	--

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	232.3831	--

Manufacturer Test Comments

24MY MX5a HEV AWD 20inch E10 - 50F

Certification Summary Information Report

Test Group		VHYXT01.6M13				Evaporative/Refueling Family				VHYXR0137M1G		
Certification Region	Useful Life	Standard Level	Emission Name	Rounded Result	RAF	NMOG/NM HC Ratio	Diesel Adjustment Factor	Add DF	Mult DF	Certification Level	Standard	Pass/Fail
CA	4,000 miles	California LEV-IV SULEV30	CO	0.10	--	--	--	--	--	0.1	1.0	Pass
CA	4,000 miles	California LEV-IV SULEV30	NMOG	0.0086	--	1.10	--	--	--	0.009	99.999	Pass
CA	4,000 miles	California LEV-IV SULEV30	NMOG+NOX	0.0110	--	--	--	--	--	0.011	0.060	Pass
CA	4,000 miles	California LEV-IV SULEV30	NOX	0.0024	--	--	--	--	--	0.002	99.999	Pass

Certification Summary Information Report

Test Group	VHYXT01.6M13	Evaporative/Refueling Family	VHYXR0137M1G
Test #	RHYX10082583	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	08/27/2023	Fuel	Gasoline
Fuel Batch ID	22M-01	Fuel Calibration Number	1
Vehicle Class	LDT2 (LVW 3751-5750, GVW 0-6000), LDV/Passenger Car	DF Type	Mfr. Determined
Verify Test Lab ID	772-1, Jangduck-Dong		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4360	Odometer Units	M
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
CO2 BAG 1 (Bag 1 Carbon Dioxide)	275	--
FE BAG 1 (Bag 1 Fuel Economy)	32.4	32.4
CO2 BAG 2 (Bag 2 Carbon Dioxide)	105	--
FE BAG 2 (Bag 2 Fuel Economy)	84.9	84.9
CO2 BAG 3 (Bag 3 Carbon Dioxide)	279	--
FE BAG 3 (Bag 3 Fuel Economy)	31.9	31.9
CO2 BAG 4 (Bag 4 Carbon Dioxide)	128	--
FE BAG 4 (Bag 4 Fuel Economy)	69.7	69.7
METHANE (CH4 - Methane)	0.0029	--
CO (Carbon Monoxide)	0.0794	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	1.49	--
DT-EER (Drive Trace Energy Economy Rating)	1.23	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	2.12	--
MFR FE (Manufacturer Fuel Economy)	45.7003	45.7003
NOX (Nitrogen Oxide)	0.0018	--
N2O (Nitrous Oxide)	0.0003	--
HC-NM (Non-methane Hydrocarbon)	0.0057	--
NMOG (Non-methane organic gases)	0.0059	--
HC-TOTAL (Total Hydrocarbon)	0.0084	--

Certification Summary Information Report

Test Group		VHYXT01.6M13			Evaporative/Refueling Family				VHYXR0137M1G			
		Test Result Name		Unrounded Test Result		Verify Calculated CREE/OPT-CREE						
		Carbon-Related Exhaust Emissions		195		195						
		Test Result Name		Unrounded Test Result		Verify Calculated CO2						
		Carbon dioxide		194.8639		--						
Manufacturer Test Comments		24MY MX5a HEV AWD 20inch E0 - 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 30	CREE	195	--	--	--	0.229467	--	195	--	--
Fed	120,000 miles	Federal Tier 3 Bin 30	METHANE	0.0029	--	--	--	0.0014	--	0.004	0.030	Pass
Fed	120,000 miles	Federal Tier 3 Bin 30	N2O	0.0003	--	--	--	0.0010	--	0.001	0.010	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	CO	0.08	--	--	--	0.22	--	0.3	1.0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG	0.0059	--	1.10	--	0.0036	--	0.010	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG+NOX	0.0077	--	--	--	--	--	0.013	0.030	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NOX	0.0018	--	--	--	0.0016	--	0.003	99.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	CO	0.08	--	--	--	0.22	--	0.3	1.0	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG	0.0059	--	1.10	--	0.0036	--	0.010	99.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG+NOX	0.0077	--	--	--	--	--	0.013	0.030	Pass
CA	150,000 miles	California LEV-IV SULEV30	NOX	0.0018	--	--	--	0.0016	--	0.003	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	VHYXT01.6M13	Evaporative/Refueling Family	VHYXR0137M1G																														
Test #	RHYX10082550	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	08/17/2023	Fuel	Gasoline																														
Fuel Batch ID	23T-01	Fuel Calibration Number	1																														
Vehicle Class	LDT2 (LVW 3751-5750, GVW 0-6000), LDV/Passenger Car	DF Type	Mfr. Determined																														
Verify Test Lab ID	772-1, Jangduck-Dong																																
E10 Evaporative Test Measurement Method	--																																
Test Start Odometer Reading	4136	Odometer Units	M																														
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--																														
State of Charge Delta	Yes																																
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	Road Speed Fan Usage	Yes																														
Test Results																																	
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Carbon dioxide	215.8643	--																															
Manufacturer Test Comments	24MY MX5a HEV AWD 20inch E10 - HWY																																

Certification Summary Information Report

Test Group		VHYXT01.6M13			Evaporative/Refueling Family					VHYXR0137M1G		
Certification Region	Useful Life	Standard Level	Emission Name	Rounded Result	RAF	NMOG/NM HC Ratio	Diesel Adjustment Factor	Add DF	Mult DF	Certification Level	Standard	Pass/Fail
Fed	120,000 miles	Federal Tier 3 Bin 30	CREE	999	--	--	--	0.229467	--	999	--	--
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG	0.0000	--	1.03	--	0.0036	--	0.004	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG+NOX	0.0010	--	--	--	--	--	0.006	0.030	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NOX	0.0010	--	--	--	0.0016	--	0.003	99.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG	0.0000	--	1.03	--	0.0036	--	0.004	99.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG+NOX	0.0010	--	--	--	--	--	0.006	0.030	Pass
CA	150,000 miles	California LEV-IV SULEV30	NOX	0.0010	--	--	--	0.0016	--	0.003	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	VHYXT01.6M13	Evaporative/Refueling Family	VHYXR0137M1G
Test #	RHYX10082576	Test Procedure	3 - HWFE
Exhaust Test # for this Evap Test	--	Test Fuel Type	61 - Tier 2 Cert Gasoline
Test Date	08/27/2023	Fuel	Gasoline
Fuel Batch ID	22M-01	Fuel Calibration Number	1
Vehicle Class	LDT2 (LVW 3751-5750, GVW 0-6000), LDV/Passenger Car	DF Type	Mfr. Determined
Verify Test Lab ID	772-1, Jangduck-Dong		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4375	Odometer Units	M
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
CO (Carbon Monoxide)	0.0743	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	4.05	--
DT-EER (Drive Trace Energy Economy Rating)	0.5	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	5.57	--
MFR FE (Manufacturer Fuel Economy)	45.0177	45.0177
NOX (Nitrogen Oxide)	0.0004	--
HC-NM (Non-methane Hydrocarbon)	0	--
NMOG (Non-methane organic gases)	0	--
HC-TOTAL (Total Hydrocarbon)	0.0001	--

Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE
Carbon-Related Exhaust Emissions	198	198

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	197.8053	--

Manufacturer Test Comments 24MY MX5a HEV AWD 20inch E0 - HWY

Certification Summary Information Report

Test Group		VHYXT01.6M13			Evaporative/Refueling Family					VHYXR0137M1G		
Certification Region	Useful Life	Standard Level	Emission Name	Rounded Result	RAF	NMOG/NM HC Ratio	Diesel Adjustment Factor	Add DF	Mult DF	Certification Level	Standard	Pass/Fail
Fed	120,000 miles	Federal Tier 3 Bin 30	CREE	198	--	--	--	0.229467	--	198	--	--
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG	0.0000	--	1.03	--	0.0036	--	0.004	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG+NOX	0.0004	--	--	--	--	--	0.006	0.030	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NOX	0.0004	--	--	--	0.0016	--	0.002	99.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG	0.0000	--	1.03	--	0.0036	--	0.004	99.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG+NOX	0.0004	--	--	--	--	--	0.006	0.030	Pass
CA	150,000 miles	California LEV-IV SULEV30	NOX	0.0004	--	--	--	0.0016	--	0.002	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	VHYXT01.6M13	Evaporative/Refueling Family	VHYXR0137M1G
Test #	RHYX10082551	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	08/17/2023	Fuel	Gasoline
Fuel Batch ID	23T-01	Fuel Calibration Number	1
Vehicle Class	LDT2 (LVW 3751-5750, GVW 0-6000), LDV/Passenger Car	DF Type	Mfr. Determined
Verify Test Lab ID	772-1, Jangduck-Dong		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4157	Odometer Units	M
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
CO2 BAG 1 (Bag 1 Carbon Dioxide)	443	--
FE BAG 1 (Bag 1 Fuel Economy)	18.9	18.9
CO2 BAG 2 (Bag 2 Carbon Dioxide)	291	--
FE BAG 2 (Bag 2 Fuel Economy)	28.7	28.7
CO (Carbon Monoxide)	0.0569	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	-2.12	--
DT-EER (Drive Trace Energy Economy Rating)	-0.45	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	-3.43	--
MFR FE (Manufacturer Fuel Economy)	25.8205	25.8205
NOX (Nitrogen Oxide)	0.0053	--
HC-NM (Non-methane Hydrocarbon)	0.0047	--
NMOG (Non-methane organic gases)	0.0048	--
PM (Particulate Matter)	0.0013	--
HC-TOTAL (Total Hydrocarbon)	0.0074	--

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	324.4861	--

Manufacturer Test Comments 24MY MX5a HEV AWD 20inch E10 - US06

Certification Summary Information Report

Test Group		VHYXT01.6M13			Evaporative/Refueling Family					VHYXR0137M1G		
Certification Region	Useful Life	Standard Level	Emission Name	Rounded Result	RAF	NMOG/NM HC Ratio	Diesel Adjustment Factor	Add DF	Mult DF	Certification Level	Standard	Pass/Fail
Fed	150,000 miles	Federal Tier 3 Bin 30	CO	0.0569	--	--	--	0.22	--	0.277	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG	0.0048	--	1.03	--	0.0036	--	0.008	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG+NOX	0.0101	--	--	--	--	--	0.015	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NOX	0.0053	--	--	--	0.0016	--	0.007	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	PM	0.0013	--	--	--	0.0000	--	0.001	0.006	Pass
CA	150,000 miles	California LEV-IV SULEV30	CO	0.06	--	--	--	0.22	--	0.3	9.6	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG	0.0048	--	1.03	--	0.0036	--	0.008	99.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG+NOX	0.0101	--	--	--	--	--	0.015	0.030	Pass
CA	150,000 miles	California LEV-IV SULEV30	NOX	0.0053	--	--	--	0.0016	--	0.007	99.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	PM	0.0013	--	--	--	0.0000	--	0.001	0.003	Pass

Certification Summary Information Report

Test Group	VHYXT01.6M13	Evaporative/Refueling Family	VHYXR0137M1G																														
Test #	RHYX10082554	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	08/18/2023	Fuel	Gasoline																														
Fuel Batch ID	23T-01	Fuel Calibration Number	1																														
Vehicle Class	LDT2 (LVW 3751-5750, GVW 0-6000), 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	Yes																																
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	Road Speed Fan Usage	Yes																														
Test Results																																	
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MFR FE (Manufacturer Fuel Economy)	23.6995	23.6995																															
NOX (Nitrogen Oxide)	0.0043	--																															
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HC-TOTAL (Total Hydrocarbon)	0.004	--																															
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Test Result Name	Unrounded Test Result	Verify Calculated CO2																															
Carbon dioxide	353.1541	--																															
Manufacturer Test Comments	24MY MX5a HEV AWD 20inch E10 - SC03																																

Certification Summary Information Report

Test Group		VHYXT01.6M13				Evaporative/Refueling Family				VHYXR0137M1G		
Certification Region	Useful Life	Standard Level	Emission Name	Rounded Result	RAF	NMOG/NM HC Ratio	Diesel Adjustment Factor	Add DF	Mult DF	Certification Level	Standard	Pass/Fail
Fed	150,000 miles	Federal Tier 3 Bin 30	CO	0.0688	--	--	--	0.22	--	0.289	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG	0.0012	--	1.03	--	0.0036	--	0.005	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG+NOX	0.0055	--	--	--	--	--	0.011	99.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NOX	0.0043	--	--	--	0.0016	--	0.006	99.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	CO	0.07	--	--	--	0.22	--	0.3	1.0	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG	0.0012	--	1.03	--	0.0036	--	0.005	99.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG+NOX	0.0055	--	--	--	--	--	0.011	0.030	Pass
CA	150,000 miles	California LEV-IV SULEV30	NOX	0.0043	--	--	--	0.0016	--	0.006	99.999	Pass

Certification Summary Information Report

Test Group	VHYXT01.6M13	Evaporative/Refueling Family	VHYXR0137M1G									
Emission Data Vehicle Information												
Vehicle ID / Configuration	MQ4U1G6HA581F / 0	Manufacturer Vehicle Configuration Number	0									
Original Test Group Name	MKMXV01.6J13	Original Evaporative/Refueling Family	MKMXR0137J1G									
Original Test Vehicle Model Year	2021											
Vehicle Model												
Represented Test Vehicle Make	KIA	Represented Test Vehicle Model	SORENTO HYBRID									
Leak Family Details												
Leak Family Identifier	MQH	Leak Family Name	MKMXR0137J1G-MQH									
Drive Sources and Fuel System Details												
<table border="1"> <thead> <tr> <th>Drive Source and Fuel#</th><th>Drive Source</th><th>Fuel</th></tr> </thead> <tbody> <tr> <td>1</td><td>Electric Motor</td><td>Electricity</td></tr> <tr> <td>2</td><td>Combustion Engine</td><td>Gasoline</td></tr> </tbody> </table>				Drive Source and Fuel#	Drive Source	Fuel	1	Electric Motor	Electricity	2	Combustion Engine	Gasoline
Drive Source and Fuel#	Drive Source	Fuel										
1	Electric Motor	Electricity										
2	Combustion Engine	Gasoline										
Hybrid Indicator	Yes											
Multiple Fuel Storage	--	Multiple Fuel Combustion	--									
Fuel Cell Indicator	No	Rechargeable Energy Storage System Indicator	Yes									
Rechargeable Energy Storage System	Battery(s)	Rechargeable Energy Storage System, if 'Other'	--									
Off-board charge Capable Indicator	No											
Odometer Correction -- Initial	0	Odometer Correction Factor	0.9976									
Odometer Correction Sign	- = System Miles is equal to (Test odometer reading - Initial system miles) * Correction factor											
Odometer Correction Units	Miles											
Engine Code	G4FT-AC	Rated Horsepower	177									
Displacement (liters)	1.6											
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)	4065	Equivalent Test Weight (pounds)	4250									
GVWR (lbs)	5578	N/V Ratio	32.3									
Axle Ratio	3.51											
Transmission Type	Automated Manual- Selectable (e.g. Automated Manual with paddles)	# of Transmission Gears	6									
Transmission Lockup	No	Creep Gear	No									

Certification Summary Information Report

Test Group	VHYXT01.6M13	Evaporative/Refueling Family	VHYXR0137M1G
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Dynamometer Coefficients:

Coefficient Category	Target Coefficients			Set Coefficients			EPA Calculated Total Road Load Horse Power for City/Highway/Evap Coefficients
	A (lbf)	B (lbf/mph)	C (lbf/mph**2)	A (lbf)	B (lbf/mph)	C (lbf/mph**2)	
City/Highway/Evap	33.96	0.01277	0.027097	12.811	0.05451	0.025975	13.6

Emission Control Device Comments --

Manufacturer Test Vehicle Comments SORENTO HYBRID 21MY 17" EVAP-correct TM type(SA to AMS)

Test #	MKMX10064838	Test Procedure	38 - CA fuel 3-day evap.
Exhaust Test # for this Evap Test	MKMX10064829	Test Fuel Type	46 - CARB LEV3 E10 Regular Gasoline
Test Date	04/29/2020	Fuel	Gasoline
Fuel Batch ID	19E-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	2250	Odometer Units	M
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	No

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)	0.2141	--

Manufacturer Test Comments 3DBL

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	0.2141	0.0000	0.214	0.400	Pass
CA	150,000 miles	California LEV-IV Zero Evap (Option 2)	HC-TOTAL-EQUIV	0.2141	0.0000	0.214	0.300	Pass

Certification Summary Information Report

Test Group	VHYXT01.6M13	Evaporative/Refueling Family	VHYXR0137M1G
Test #	MKMX10064840	Test Procedure	27 - California fuel 2-day evap
Exhaust Test # for this Evap Test	MKMX10064831	Test Fuel Type	46 - CARB LEV3 E10 Regular
Test Date	04/14/2020	Fuel	Gasoline
Fuel Batch ID	19E-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	2185	Odometer Units	M
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	No

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)	0.2418	--

Manufacturer Test Comments 2DBL

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	0.2418	0.0000	0.242	0.400	Pass
CA	150,000 miles	California LEV-IV Zero Evap (Option 2)	HC-TOTAL-EQUIV	0.2418	0.0000	0.242	0.300	Pass

Certification Summary Information Report

Test Group	VHYXT01.6M13	Evaporative/Refueling Family	VHYXR0137M1G						
Test #	MKMX10064839	Test Procedure	37 - California Fuel Running Loss						
Exhaust Test # for this Evap Test	MKMX10064829	Test Fuel Type	46 - CARB LEV3 E10 Regular Gasoline						
Test Date	04/29/2020	Fuel	Gasoline						
Fuel Batch ID	19E-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	2250	Odometer Units	M						
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--						
State of Charge Delta	Yes								
Drive Cycle Speed Tolerance Criteria	Used Part 86 (+/- 2 mph, +/- 1 sec)	Road Speed Fan Usage	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>0.0002</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)	0.0002	--
Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)							
HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)	0.0002	--							
Manufacturer Test Comments RL									
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	0.000	0.000	0.00	0.05	Pass	
CA	150,000 miles	California LEV-IV Zero Evap (Option 2)	HC-TOTAL-EQUIV	0.000	0.000	0.00	0.01	Pass	

Certification Summary Information Report

Test Group	VHYXT01.6M13	Evaporative/Refueling Family	VHYXR0137M1G						
Test #	MKMX10064841	Test Procedure	24 - Federal fuel refueling test (ORVR)						
Exhaust Test # for this Evap Test	MKMX10064824	Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)						
Test Date	03/19/2020	Fuel	Gasoline						
Fuel Batch ID	19T-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	2114	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>0.0304</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)	0.0304	--
Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)							
HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)	0.0304	--							
Manufacturer Test Comments 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	0.030	0.000	0.03	0.20	Pass	
CA	150,000 miles	California LEV-IV Zero Evap (Option 2)	HC-TOTAL-EQUIV	0.030	0.000	0.03	0.20	Pass	

Certification Summary Information Report

Test Group	VHYXT01.6M13	Evaporative/Refueling Family	VHYXR0137M1G						
Test #	MKMX10064842	Test Procedure	65 - Evap Canister Bleed Test						
Exhaust Test # for this Evap Test	--	Test Fuel Type	46 - CARB LEV3 E10 Regular						
Test Date	03/24/2020	Fuel	Gasoline						
Fuel Batch ID	19E-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	2141	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 (Total Hydrocarbon)</td> <td>0.0077</td> <td>--</td> </tr> </table>				Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)	HC-TOTAL (Total Hydrocarbon)	0.0077	--
Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)							
HC-TOTAL (Total Hydrocarbon)	0.0077	--							
Manufacturer Test Comments									
BLEED-CORRECT E10 MEASUREMENT METHOD									
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	0.0077	0.0000	0.008	0.020	Pass	
CA	150,000 miles	California LEV-IV Zero Evap (Option 2)	HC-TOTAL	0.0077	0.0000	0.008	0.020	Pass	

Certification Summary Information Report

Test Group	VHYXT01.6M13	Evaporative/Refueling Family	VHYXR0137M1G						
Test #	MKMX10064832	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	03/13/2020	Fuel	Gasoline						
Fuel Batch ID	19T-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	--								
Test Start Odometer Reading	2045	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									
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	0.0000	0.000	0.020	Pass	
CA	150,000 miles	California LEV-IV Zero Evap (Option 2)	LEAK-DIA	0.000	0.000	0.00	0.02	Pass	

Certification Summary Information Report

Test Group	VHYXT01.6M13	Evaporative/Refueling Family	VHYXR0137M1G						
Test #	MKMX10064837	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	03/13/2020	Fuel	Gasoline						
Fuel Batch ID	19T-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	--								
Test Start Odometer Reading	2045	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									
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	0.0000	0.000	0.020	Pass	
CA	150,000 miles	California LEV-IV Zero Evap (Option 2)	LEAK-DIA	0.000	0.0000	0.00	0.02	Pass	

Certification Summary Information Report

Test Group	VHYXT01.6M13	Evaporative/Refueling Family	VHYXR0137M1G
Fuel Properties			
Fuel Batch ID	22M-01	Fuel Calibration Number	1
Test Fuel Type	61 - Tier 2 Cert Gasoline	Fuel Batch Calibration Date	02/14/2022
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	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 (%)	9.8	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	19T-02	Fuel Calibration Number	1
Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)	Fuel Batch Calibration Date	06/05/2019
Fuel Batch Calibration Effective Date	12/10/2019	Fuel Batch Calibration Ineffective Date	12/10/2022
Carbon Weight Fraction NMHC	--	Carbon Weight Fraction HC	--
Exhaust Carbon Weight Fraction	--	Fuel Methanol Volume Fraction	--
Fuel Density (grams/cubic ft)	--	Fuel Specific Gravity	0.744
Fuel Ethanol Volume Percent (%)	9.8	Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)	17949
Fuel Net Heat of Combustion (E10) (MJ/kg)	--	Fuel Carbon Mass Fraction (E10)	--
Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0)	0.826	Weight Fraction CO2	--
Fuel Batch ID	19E-03	Fuel Calibration Number	1
Test Fuel Type	46 - CARB LEV3 E10 Regular Gasoline	Fuel Batch Calibration Date	08/08/2019
Fuel Batch Calibration Effective Date	10/29/2019	Fuel Batch Calibration Ineffective Date	10/29/2022
Carbon Weight Fraction NMHC	--	Carbon Weight Fraction HC	--

Certification Summary Information Report

Test Group	VHYXT01.6M13	Evaporative/Refueling Family	VHYXR0137M1G
Exhaust Carbon Weight Fraction	--	Fuel Methanol Volume Fraction	--
Fuel Density (grams/cubic ft)	--	Fuel Specific Gravity	0.75
Fuel Ethanol Volume Percent (%)	9.6	Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)	17917
Fuel Net Heat of Combustion (E10) (MJ/kg)	--	Fuel Carbon Mass Fraction (E10)	--
Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0)	0.827	Weight Fraction CO2	--
Fuel Batch ID	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	--
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	--

Certification Summary Information Report

Test Group		VHYXT01.6M13			Evaporative/Refueling Family			VHYXR0137M1G	
Consolidated List of Standards									
Exhaust Standards									
Cert Region		Federal			Cert/In-Use Code			Cert	
Vehicle Class		LDT2 (LVW 3751-5750, GVW 0-6000)			Standard Level			Federal Tier 3 Bin 30	
Fuel		Gasoline			Test Procedure			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	--	--	--	--	--	--	0.229467	999
120,000 miles	METHANE	--	--	--	--	--	--	0.0014	0.030
120,000 miles	N2O	--	--	--	--	--	--	0.0010	0.010
150,000 miles	CO	--	--	--	--	--	--	0.22	1.0
150,000 miles	CO-COMP	--	--	--	--	--	--	0	4.2
150,000 miles	HCHO	--	--	--	--	--	--	--	0.004
150,000 miles	NMOG	--	--	1.10	--	--	--	0.0036	99.999
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0.030
150,000 miles	NMOG+NOX-COMP	--	--	--	--	--	--	0	0.030
150,000 miles	NOX	--	--	--	--	--	--	0.0016	99.999
150,000 miles	PM	--	--	--	--	--	--	0.0000	0.003
Cert Region		California + CAA Section 177 states			Cert/In-Use Code			Cert	
Vehicle Class		LDV/Passenger Car			Standard Level			California LEV-IV SULEV30	
Fuel		Gasoline			Test Procedure			Federal fuel 2-day exhaust (w/can load)	
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
150,000 miles	CO	--	--	--	--	--	--	0.22	1.0
150,000 miles	HCHO	--	--	--	--	--	--	--	0.004
150,000 miles	NMOG	--	--	1.10	--	--	--	0.0036	99.999
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0.030
150,000 miles	NOX	--	--	--	--	--	--	0.0016	99.999
150,000 miles	PM	--	--	--	--	--	--	0.0000	0.001

Certification Summary Information Report

Test Group	VHYXT01.6M13				Evaporative/Refueling Family			VHYXR0137M1G	
Cert Region	California + CAA Section 177 states				Cert/In-Use Code			Cert	
Vehicle Class	LDV/Passenger Car				Standard Level			California LEV-IV SULEV30	
Fuel	Gasoline				Test Procedure			SC03	
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
150,000 miles	CO	--	--	--	--	--	--	0.22	1.0
150,000 miles	NMOG	--	--	1.03	--	--	--	0.0036	99.999
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0.030
150,000 miles	NOX	--	--	--	--	--	--	0.0016	99.999

Cert Region	California + CAA Section 177 states				Cert/In-Use Code			Cert	
Vehicle Class	LDV/Passenger Car				Standard Level			California LEV-IV SULEV30	
Fuel	Gasoline				Test Procedure			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	--	--	--	--	--	--	--	1.0
4,000 miles	HCHO	--	--	--	--	--	--	--	0.008
4,000 miles	NMOG	--	--	1.10	--	--	--	--	99.999
4,000 miles	NMOG+NOX	--	--	--	--	--	1	--	0.060
4,000 miles	NOX	--	--	--	--	--	--	--	99.999

Cert Region	Federal				Cert/In-Use Code			Cert	
Vehicle Class	LDT2 (LVW 3751-5750, GVW 0-6000)				Standard Level			Federal Tier 3 Bin 30	
Fuel	Gasoline				Test Procedure			Cold CO	
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
50,000 miles	CO	--	--	--	--	--	--	0.07	12.5
120,000 miles	HC-NM	--	--	--	--	--	--	0.0025	0.3

Certification Summary Information Report

Test Group		VHYXT01.6M13			Evaporative/Refueling Family			VHYXR0137M1G	
Cert Region		Federal			Cert/In-Use Code			Cert	
Vehicle Class		LDT2 (LVW 3751-5750, GVW 0-6000)			Standard Level			Federal Tier 3 Bin 30	
Fuel		Gasoline			Test Procedure			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	--	--	--	--	--	--	0.22	99.999
150,000 miles	NMOG	--	--	1.03	--	--	--	0.0036	99.999
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	99.999
150,000 miles	NOX	--	--	--	--	--	--	0.0016	99.999

Cert Region		California + CAA Section 177 states			Cert/In-Use Code			Cert	
Vehicle Class		LDV/Passenger Car			Standard Level			California LEV-IV SULEV30	
Fuel		Gasoline			Test Procedure			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	--	--	--	--	--	--	0.22	9.6
150,000 miles	NMOG	--	--	1.03	--	--	--	0.0036	99.999
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0.030
150,000 miles	NOX	--	--	--	--	--	--	0.0016	99.999
150,000 miles	PM	--	--	--	--	--	--	0.0000	0.003

Cert Region		Federal			Cert/In-Use Code			Cert	
Vehicle Class		LDT2 (LVW 3751-5750, GVW 0-6000)			Standard Level			Federal Tier 3 Bin 30	
Fuel		Gasoline			Test Procedure			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	--	--	--	--	--	--	0.229467	999
150,000 miles	NMOG	--	--	1.03	--	--	--	0.0036	99.999
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0.030
150,000 miles	NOX	--	--	--	--	--	--	0.0016	99.999

Certification Summary Information Report

Test Group	VHYXT01.6M13				Evaporative/Refueling Family			VHYXR0137M1G	
Cert Region	California + CAA Section 177 states				Cert/In-Use Code			Cert	
Vehicle Class	LDV/Passenger Car				Standard Level			California LEV-IV SULEV30	
Fuel	Gasoline				Test Procedure			HWFE	
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
150,000 miles	NMOG	--	--	1.03	--	--	--	0.0036	99.999
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	0.030
150,000 miles	NOX	--	--	--	--	--	--	0.0016	99.999

Cert Region	California + CAA Section 177 states				Cert/In-Use Code			Cert	
Vehicle Class	LDV/Passenger Car				Standard Level			California LEV-IV SULEV30	
Fuel	Gasoline				Test Procedure			Cold CO	
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
50,000 miles	CO	--	--	--	--	--	--	0.07	10.0

Cert Region	Federal				Cert/In-Use Code			Cert	
Vehicle Class	LDT2 (LVW 3751-5750, GVW 0-6000)				Standard Level			Federal Tier 3 Bin 30	
Fuel	Gasoline				Test Procedure			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	--	--	--	--	--	--	0.22	99.999
150,000 miles	NMOG	--	--	1.03	--	--	--	0.0036	99.999
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0	99.999
150,000 miles	NOX	--	--	--	--	--	--	0.0016	99.999
150,000 miles	PM	--	--	--	--	--	--	0.0000	0.006

Evaporative/Refueling Standards

Evaporative/Refueling Family	VHYXR0137M1G				Cert Region				
Cert/In-Use Code	Cert				Standard Level				
Test Procedure	Evap Canister Bleed Test				California + CAA Section 177 states California LEV-IV Zero Evap (Option 2)				
Fuel	Useful Life	Emission Name	Rounded Result			Std	Add DF		
Gasoline	150,000 miles	HC-TOTAL	--			0.020	0.0000		

Certification Summary Information Report

Test Group		VHYXT01.6M13		Evaporative/Refueling Family		VHYXR0137M1G	
Evaporative/Refueling Family		VHYXR0137M1G		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	0.000		
Evaporative/Refueling Family		VHYXR0137M1G		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	0.000		
Evaporative/Refueling Family		VHYXR0137M1G		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	0.0000		
Evaporative/Refueling Family		VHYXR0137M1G		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	0.000		
Evaporative/Refueling Family		VHYXR0137M1G		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	--	0.400	0.0000		

Certification Summary Information Report

Test Group		VHYXT01.6M13		Evaporative/Refueling Family		VHYXR0137M1G	
Evaporative/Refueling Family		VHYXR0137M1G		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	0.0000		
Evaporative/Refueling Family		VHYXR0137M1G		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	--	0.400	0.0000		
Evaporative/Refueling Family		VHYXR0137M1G		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	0.0000		
Evaporative/Refueling Family		VHYXR0137M1G		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	0.0000		
Evaporative/Refueling Family		VHYXR0137M1G		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	0.0000		

Certification Summary Information Report

Test Group		VHYXT01.6M13		Evaporative/Refueling Family		VHYXR0137M1G	
Evaporative/Refueling Family		VHYXR0137M1G		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	0.0000		
Evaporative/Refueling Family		VHYXR0137M1G		Cert Region		California + CAA Section 177 states	
Cert/In-Use Code		Cert		Standard Level		California LEV-IV Zero Evap (Option 2)	
Test Procedure		California Fuel Running Loss					
Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF		
Gasoline	150,000 miles	HC-TOTAL-EQUIV	--	0.01	0.000		
Evaporative/Refueling Family		VHYXR0137M1G		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	0.000		

Certification Summary Information Report

Test Group		VHYXT01.6M13	Evaporative/Refueling Family	VHYXR0137M1G
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		VHYXT01.6M13	Evaporative/Refueling Family		VHYXR0137M1G
ACT-DISTANCE	Actual Distance Driven (miles)		WATT-HRS BAG 3	Bag 3 Watt Hours	
AS-VOLT	Average System Voltage		WATT-HRS BAG 4	Bag 4 Watt Hours	
CO2 BAG 1	Bag 1 Carbon Dioxide		WATT-HRS	Watt Hours	
CO2 BAG 2	Bag 2 Carbon Dioxide		HC-NM BAG 1	Bag 1 Non-methane Hydrocarbon	
CO2 BAG 3	Bag 3 Carbon Dioxide		HC-NM BAG 2	Bag 2 Non-methane Hydrocarbon	
CO2 BAG 4	Bag 4 Carbon Dioxide		HC-NM BAG 3	Bag 3 Non-methane Hydrocarbon	
NMOG+NOX	Non-methane organic gases plus Nitrogen Oxides		HC-NM BAG 4	Bag 4 Non-methane Hydrocarbon	
NMOG+NOX-COMP	SFTP Composite Non-methane Organic Gases + Nitrogen Oxides		N2O BAG 1	Bag 1 Nitrous Oxide	
DT-IWRR	Drive Trace Inertia Work Ratio Rating		N2O BAG 2	Bag 2 Nitrous Oxide	
DT-ASCR	Drive Trace Absolute Speed Change Rating		N2O BAG 3	Bag 3 Nitrous Oxide	
DT-EER	Drive Trace Energy Economy Rating		N2O BAG 4	Bag 4 Nitrous Oxide	
Certification Region					
CA	California + CAA Section 177 states		FA	Federal	
Exhaust Emission Standard Level					
B1	Federal Tier 2 Bin 1		HDV2B340	Federal Tier 3 HD Class 2b Transitional Bin 340	
B2	Federal Tier 2 Bin 2		HDV2B250	Federal Tier 3 HD Class 2b Bin 250	
B3	Federal Tier 2 Bin 3		HDV2B200	Federal Tier 3 HD Class 2b Bin 200	
B4	Federal Tier 2 Bin 4		HDV2B170	Federal Tier 3 HD Class 2b Bin 170	
B5	Federal Tier 2 Bin 5		HDV2B150	Federal Tier 3 HD Class 2b Bin 150	
B6	Federal Tier 2 Bin 6		HDV2B0	Federal Tier 3 HD Class 2b Bin 0	
B7	Federal Tier 2 Bin 7		HDV3B630	Federal Tier 3 HD Class 3 Transitional Bin 630	
B8	Federal Tier 2 Bin 8		HDV3B570	Federal Tier 3 HD Class 3 Transitional Bin 570	
B9	Federal Tier 2 Bin 9		HDV3B400	Federal Tier 3 HD Class 3 Bin 400	
B10	Federal Tier 2 Bin 10		HDV3B270	Federal Tier 3 HD Class 3 Bin 270	
B11	Federal Tier 2 Bin 11		HDV3B230	Federal Tier 3 HD Class 3 Bin 230	
HDV1	HDV1 (Federal HD chassis Class 2b GVW 8501-10000)		HDV3B200	Federal Tier 3 HD Class 3 Bin 200	
HDV2	HDV2 (Federal HD chassis Class 3 GVW 10001-14000)		HDV3B0	Federal Tier 3 HD Class 3 Bin 0	
L2	California LEV-II LEV		L4SULEV100	California LEV-IV SULEV100	
L2OP	California LEV-II LEV Optional		L4SULEV125	California LEV-IV SULEV125	
U2	California LEV-II ULEV		L4SULEV15	California LEV-IV SULEV15	
S2	California LEV-II SULEV		L4SULEV150	California LEV-IV SULEV150	
ZEV	California ZEV		L4SULEV170	California LEV-IV SULEV170	
OT	Other		L4SULEV175	California LEV-IV SULEV175	
T1	Federal Tier 1		L4SULEV20	California LEV-IV SULEV20	
PZEV	California PZEV		L4SULEV200	California LEV-IV SULEV200	
L2LEV160	California LEV-II LEV160		L4SULEV230	California LEV-IV SULEV230	
L2ULEV125	California LEV-II ULEV125		L4SULEV25	California LEV-IV SULEV25	
L2SULEV30	California LEV-II SULEV30		L4SULEV30	California LEV-IV SULEV30	
L2LEV395	California LEV-II LEV395		L4SULEV75	California LEV-IV SULEV75	

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Test Group		VHYXT01.6M13	Evaporative/Refueling Family		VHYXR0137M1G
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		VHYXT01.6M13	Evaporative/Refueling Family		VHYXR0137M1G
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	