



## Application for Certification - Part 1

### Test Group (CBI)

- **Model Year:** 2027
- **Manufacturer Name:** Hyundai Motor Company
- **Test Group:** VHYXV01.6SB7
- **Test Group Description:** 1.6 Liter / I4 SFI / Otto-cycle
- **Durability Group:** VHYXGPGNNSB7
- **Durability Group Description:** Monolith, WU-TWC + TWC
- **Vehicle Class:** LDV
- **Applicable Standards:** FED: Interim Tier 4 Bin 70 / Tier 4 Evap  
CAL: LEV-IV ULEV70 / LEV-IV Evap
- **Vehicle Tested:** Exh EDV- QX-U0G6MC114F/0  
Evap EDV- QX-U0G6MC120F/0  
FEDV- QX-U0G6MC117F/0
- **Carlines Covered by Certificate:** Venue
- **EPA Response Requested by:** June 2, 2026
- **For Questions, Contact:** Stephanie Wright  
Tel: 734-273-1904  
E-mail: [swright@hatci.com](mailto: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                                            | : | VHYXGPGNNSB7                               |
| 2. Combustion cycle                                                 | : | Otto cycle / four stroke                   |
| 3. Engine type                                                      | : | Piston / Water cooled                      |
| 4. Fuel used                                                        | : | Gasoline                                   |
| 5. Basic fuel metering system                                       | : | SFI (Sequential Multipoint Fuel 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                                       |

## 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: VHYXR0120SBG (20MY Venue 1.6 C/O)**

##### **03.00.01.01   Evaporative/Refueling Family Parameters**

1. Type of Vapor Storage Device: Canister (1EA), Air cleaner (1EA)

2. Basic canister design

| Evap.<br>code | Absorption<br>flow rate<br>(g/hr) | Nominal<br>working<br>capacity(g) | Size<br>(cc) | Material | Medium              | Nominal<br>fuel tank<br>capacity (gal) |
|---------------|-----------------------------------|-----------------------------------|--------------|----------|---------------------|----------------------------------------|
| 120SBG        | 15                                | 120                               | 2000         | Plastic  | Activated<br>carbon | 11.9                                   |

3. Fuel system: Returnless fuel system

4. Type of refueling emission control system: Integrated type

5. Fillpipe seal mechanism: Liquid seal type

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

- a. 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 : No

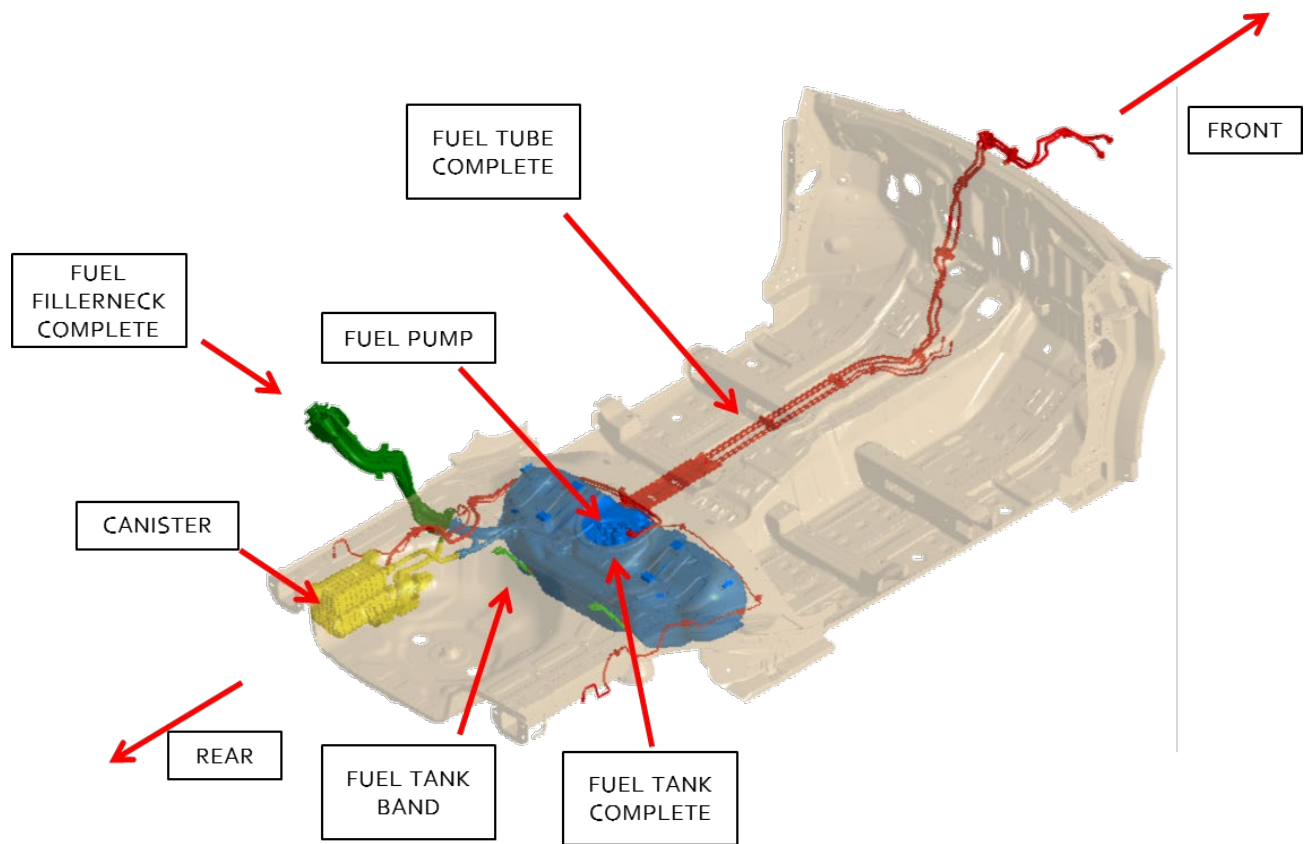
8. Vapor hose material: Rubber

9. Fuel tank material: Plastic

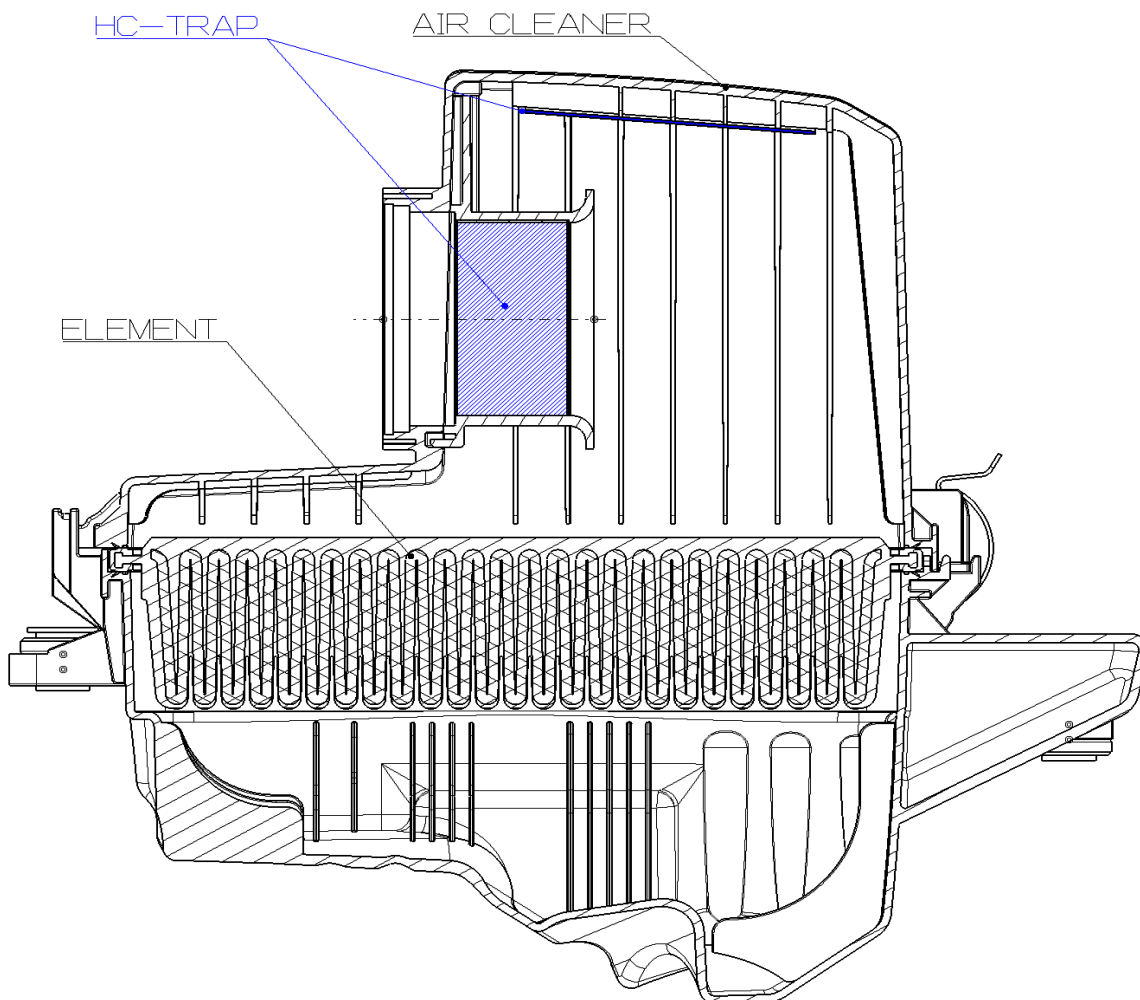
10. HC-Trap

- a. Media : Paper containing activated carbon
- b. Working capacity : 1.2g

### 03.00.01.02 Evaporative/Refueling Schematic



### 03.00.01.03 HC-Trap Schematic



VHYXV01.6SB7 - Hyundai Venue 1.6 – Part 1  
Issued : 04-25-2026  
Revised:

### **03.01          Evaporative/Refueling General Description**

Please refer to Common Section 03.01.

### **03.02          List of Vehicles in Evaporative Families**

Please refer to Common Section 03.02.

## **05.00          Test Group Description**

|                                  |   |                                                                                                 |
|----------------------------------|---|-------------------------------------------------------------------------------------------------|
| Test group name                  | : | VHYXV01.6SB7                                                                                    |
| Engine displacement (L) covered  | : | 1.6L                                                                                            |
| Arrangement/number of cylinders  | : | I4                                                                                              |
| Vehicle class(s) covered         | : | LDV                                                                                             |
| Sales location/emission standard | : | FED: Interim Tier 4 Bin 70<br>CAL: LEV-IV ULEV70<br>See CSI report for emission standard levels |

## 06.00 Test Vehicle Description

### 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 :** QX9R6GU13B2  
**Vehicle Configuration Number :** 0

##### Vehicle Configuration Details

###### Vehicle Description Details

**Manufacturer Vehicle Configuration Number :** 0  
**Test Group Name :** LHYXV01.6SB5  
**Evaporative Refueling Family Name :** LHYXR0120SBG  
**Leak Family Identifier :** QX1  
**Leak Family Name :** LHYXR0120SBG-QX1  
**Model Year :** 2020  
**Actual Test Vehicle Make Text :** HYUNDAI  
**Actual Test Vehicle Model Text :** Venue

###### Drive Source Details

**Drive Source Identifier :** C  
**Fuel Identifier :** G

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

###### Odometer Correction Details

**Correction Initial Value :** 0  
**Correction Factor Value :** 1.0214  
**Correction Sign Identifier :** -  
**Correction Units Code :** M

**Engine Code Text :** G4FM-CV  
**Engine Rated Horsepower Value :** 121  
**Engine Displacement Value :** 1.6

###### Air Aspiration Details

**Air Aspiration Method Identifier :** NA  
**Air Aspiration Device Count :** 0

###### Vehicle Specifications Details

**Curb Weight Value :** 2737  
**Equivalent Test Weight Value :** 3000  
**Gross Vehicle Weight Rating Value :** 3770  
**NV Ratio Value :** 33.5  
**Axle Ratio Value :** 6.48

THYXV01.6SB7 - Hyundai Venue 1.6 – Part 1  
Issued : 04-25-2024  
Revised:

#### Transmission Specifications Details

Light Duty Transmission Type Identifier : SCV  
Transmission Lockup Indicator : Y  
Transmission Creeper Gear Indicator : N  
Transmission Gear Count : 1

#### Target Set Coefficient Details

Test Procedure Dynamometer Coefficients Category : C-H-E  
Target CoefficientA Value : 27.946  
Target CoefficientB Value : -0.03502  
Target CoefficientC Value : 0.025288  
Set CoefficientA Value : 2.165  
Set CoefficientB Value : 0.34354  
Set CoefficientC Value : 0.020573

#### Target Set Coefficient Details

Test Procedure Dynamometer Coefficients Category : US06  
Target CoefficientA Value : 27.946  
Target CoefficientB Value : -0.03502  
Target CoefficientC Value : 0.025288  
Set CoefficientA Value : 2.165  
Set CoefficientB Value : 0.34354  
Set CoefficientC Value : 0.020573

#### Target Set Coefficient Details

Test Procedure Dynamometer Coefficients Category : Cold-CO  
Target CoefficientA Value : 30.741  
Target CoefficientB Value : -0.03852  
Target CoefficientC Value : 0.027817  
Set CoefficientA Value : 0.329  
Set CoefficientB Value : 0.11675  
Set CoefficientC Value : 0.024846

Manufacturer Comment Text : QX 1.6 MPI CVT ULEV 17in - DDV

#### EPA Generated Test Vehicle Details

Original Receipt Date : 20200304  
Hybrid Vehicle Indicator : N  
Adjusted Loaded Vehicle Weight Value : 3253  
Loaded Vehicle Weight Value : 3037  
Total Road Load Horsepower Value : 11.9

#### Transaction Status Details

Transaction Status Identifier : ACCEPTED

## **Exhaust & Evaporative Emission Data Vehicle**

Please refer to CSI report in 07.00



**07.00        Test Results**

**07.01.01    EV-CIS Certification Summary Information**

Certification Summary Information Report submitted to EV-CIS.

See 18.00.00.

**2. LITMUS TEST SHEET**

※ Reference : \$600.115-1

Litmus Test of EDV

| EDV   | FTP(75°F) | Cold FTP<br>(20°F) | HFET | US06 | SC03 |
|-------|-----------|--------------------|------|------|------|
| BAG1  | 36.2      | 26.3               | 49.0 | 22.3 | 26.7 |
| BAG2  | 37.8      | 31.0               |      | 34.6 |      |
| BAG3  | 39.7      | 34.7               |      |      |      |
| TOTAL | 38.0      |                    |      | 30.8 |      |

**(1) Determining the City FE Method**

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

|         |                                   | UNROUNDED   | ADJ. ROUNDED | Examination | Decision |
|---------|-----------------------------------|-------------|--------------|-------------|----------|
| CITY FE | MPG BASED                         | 28.88508146 | 27.7         | Applicable  | Selected |
|         | 5-CYCLE                           | 28.91859392 | 28.9         | Applicable  |          |
|         | Ratio of 5CYCLE to 0.96 MPG-BASED |             | 104.33       |             |          |

CRITERIA : 100%

**(2) Determining the Hwy FE Method**

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

|        |                                   | UNROUNDED | ADJ. ROUNDED | Examination    | Decision |
|--------|-----------------------------------|-----------|--------------|----------------|----------|
| HWY FE | MPG BASED                         | 33.7731   | 32.1         | Select This    | Selected |
|        | 5-CYCLE                           | 32.3463   | 32.3         | Not Applicable |          |
|        | MODIFIED                          | 32.4551   | 32.5         | Not Applicable |          |
|        | Ratio of 5CYCLE to 0.95 MPG-BASED |           | 100.62       |                |          |

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**

## 12.00 Description of Vehicles Covered by Certificate and Test Parameters

### 12.01 Vehicle Parameters

|                                     |                                               |                           |                        |
|-------------------------------------|-----------------------------------------------|---------------------------|------------------------|
| Carline                             |                                               | 250                       |                        |
| Model name                          |                                               | Venue                     |                        |
| Vehicle classification              |                                               | LDV                       |                        |
| Emission control system description | Type, number and configuration of catalyst(s) | See Sec. 02.02            |                        |
|                                     | EGR Type                                      | N/A                       |                        |
|                                     | Air pump type                                 | N/A                       |                        |
|                                     | Fuel system type                              | SFI                       |                        |
|                                     | Intake air aspiration method                  | Naturally Aspirated       |                        |
|                                     | Other                                         | -                         |                        |
| Engine code                         |                                               | G4FM-CV                   |                        |
| Number of valves per cylinder       |                                               | 4                         |                        |
| Engine displacement (L)             |                                               | 1.6                       |                        |
| Sales area                          |                                               | 50-State                  |                        |
| Transmission and overdrive          |                                               | SCV                       |                        |
| SIL                                 |                                               | N/A                       |                        |
| Tire size                           |                                               | 205/55R17<br>(Nexen)      | 185/65R15<br>(Hankook) |
| N/V ratios                          |                                               | 33.5                      | 33.1                   |
| ETW(lb)                             |                                               | 3000                      | 3000                   |
| Elec. dyno. target coefficient      | A                                             | Please refer to 12.02.01. |                        |
|                                     | B                                             |                           |                        |
|                                     | C                                             |                           |                        |
| Fuel tank volume(gal)               |                                               | 11.9                      |                        |

## **12.02.02     Engine Starting Procedures**

Please refer to Common Section 12.02.02.

## **12.02.03     Shift Schedules**

Automatic transmission: Please refer to Common Section 12.02.03.01

Manual transmission: Not Applicable

## **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  
VHYXV01.6SB7 / Evaporative Family VHYXR0120SBG

Dear Ms. Kathryn Kochunas:

Hyundai Motor Company requests that EPA issue a Certificate of Conformity for the test group mentioned 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](mailto:swright@hatci.com) or (734) 273-1904.

Sincerely,

A handwritten signature in black ink, appearing to read 'C. H. Ji'.

C. H. Ji  
General Manager  
Regulation & Certification Team2  
Hyundai Motor Company

VHYXV01.6SB7 - Hyundai Venue 1.6 – Part 1  
Issued : 04-25-2026  
Revised:



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

Subject: Request for an Executive Order for 2027 Model Year Test Group  
VHYYXV01.6SB7 / Evaporative Family VHYXR0120SBG

Dear Ms. Robin U. Lang:

Hyundai Motor Company requests that California Air Resources Board (CARB) issue an Executive Order for the test group mentioned 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](mailto: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 Team2  
Hyundai Motor Company

|              |                                      |
|--------------|--------------------------------------|
| <b>15.00</b> | <b>Other Information</b>             |
| <b>15.01</b> | <b>Certification Fee Filing Form</b> |

# 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 \*

VHYXV01.6SB7

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<br>VEHICLE EMISSION CONTROL INFORMATION |             |
| Conforms to regulations:                                                          |  | 2027 MY                                                       |             |
| U.S.EPA: Interim T4B70 LDV   OBD: CA II   Fuel: Gasoline                          |  |                                                               |             |
| California: LEV IV ULEV70 PC   OBD: CA II   Fuel: Gasoline                        |  |                                                               |             |
| No adjustments needed.                                                            |  | SFI,WR-HO2S,HO2S,WU-TWC,TWC,EGR,EGRC                          |             |
| Group: VHYXV01.6SB7<br>Evap.: VHYXR0120SBG                                        |  |                                                               | 32450-2MSM2 |

### **15.03           ORVR Safety Statement**

Hyundai Motor Company 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                   |
|-----------------|-------|---------------------------------------------------|
| VHYXV01.6SB7    | Venue | SFI, WR-HO2S, HO2S, WU-TWC, TWC, EGR, EGRC OBD II |

Note) SFI : Sequential multiport Fuel Injection  
WR-HO2S : Wide Range Heated Oxygen Sensor  
HO2S : Heated Oxygen Sensor  
WU-TWC : Warm up Three Way Catalyst System  
TWC : Three Way Catalyst System  
EGR : Exhaust Gas Recirculation  
EGRC : EGR Cooler  
OBD II : On-Board Diagnostics II  
(Use abbreviations per SAE J1930 October 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

|                                   |                       |                                     |                        |
|-----------------------------------|-----------------------|-------------------------------------|------------------------|
| <b>Manufacturer</b>               | Hyundai Motor Company | <b>Manufacturer Code</b>            | HYX                    |
| <b>Test Group</b>                 | VHYXV01.6SB7          | <b>Evaporative/Refueling Family</b> | VHYXR0120SBG           |
| <b>Certificate Number</b>         | --                    | <b>CARB Executive Order #</b>       | --                     |
| <b>Certificate Issue Date</b>     | --                    | <b>Certificate Revision Date</b>    | --                     |
| <b>Certificate Effective Date</b> | --                    | <b>Conditional Certificate</b>      | --                     |
| <b>CSI Revision #</b>             | --                    | <b>CSI Submission/Revision Date</b> | 04/16/2026 12:39:48 AM |
| <b>Model Year</b>                 | 2027                  |                                     |                        |

  
**Test Group Information**

|                          |                       |                                        |    |
|--------------------------|-----------------------|----------------------------------------|----|
| <b>CSI Type</b>          | Update for Correction | <b>Running Change Reference Number</b> | -- |
| <b>GHG Exempt Status</b> | Not Exempt            |                                        |    |

  
**Drive Sources and Fuel(s)**

**Drive Source #1:** Combustion Engine

| Fuel     | Basic Fuel Metering System           | Lean Burn Strategy Indicator |
|----------|--------------------------------------|------------------------------|
| Gasoline | Multipoint/sequential fuel injection | No                           |

|                                                     |                                                                                     |                                                            |              |
|-----------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------|--------------|
| <b>Hybrid Indicator</b>                             | No                                                                                  |                                                            |              |
| <b>Multiple Fuel Storage</b>                        | --                                                                                  | <b>Rechargeable Energy Storage System Indicator</b>        | --           |
| <b>Multiple Fuel Combustion</b>                     | --                                                                                  | <b>Off-board Charge Capable Indicator</b>                  | --           |
| <b>Fuel Cell Indicator</b>                          | --                                                                                  | <b>EPA Vehicle Class</b>                                   | LDV          |
| <b>Federal Clean Fuel Vehicle</b>                   | No                                                                                  | <b>Federal Clean Fuel Vehicle Standard</b>                 | --           |
| <b>Federal Clean Fuel Vehicle ILEV</b>              | No                                                                                  | <b>California Partial Zero Emissions Vehicle Indicator</b> | No           |
| <b>Durability Group Name</b>                        | VHYXGPGNNSB7                                                                        | <b>Durability Group Equivalency Factor</b>                 | 1.0          |
| <b>Reduced Fee Test Group</b>                       | No                                                                                  | <b>Certification Region Code(s)</b>                        | FA, CA       |
| <b>Complies with HD GHG 2b/3 regulations?</b>       | No                                                                                  |                                                            |              |
| <b>Introduction into Commerce Date</b>              | --                                                                                  | <b>CAP2000 Conditional Certificate?</b>                    | N/A          |
| <b>Independent Commercial Importer?</b>             | --                                                                                  | <b>Alternative Fuel Converter Certificate?</b>             | --           |
| <b>SFTP Federal Composite Compliance Identifier</b> | Tier 3                                                                              | <b>SFTP Tier 2 Composite CO Option</b>                     | No           |
| <b>SFTP LEV-III Composite Compliance Indicator</b>  | No                                                                                  |                                                            |              |
| <b>OBD Compliance Type</b>                          | CARB                                                                                | <b>OBD Demonstration Vehicle Test Group</b>                | VKMXV01.6NC3 |
| <b>Test Group OBD Compliance Level</b>              | Full - no deficiencies                                                              | <b>Number of Test Group OBD Deficiencies</b>               | 0            |
| <b>OBD Deficiencies Comments</b>                    | --                                                                                  |                                                            |              |
| <b>Mfr Test Group Comments</b>                      | Litmus result city FE threshold=27.7 5cycle=28.9, hwy FE threshold=32.1 5cycle=32.3 |                                                            |              |
| <b>Mfr Exhaust / Evap Standards Comments</b>        | --                                                                                  |                                                            |              |



## Certification Summary Information Report

|                                                                             |                                                  |                                                           |                                     |                      |                                                          |                     |                       |
|-----------------------------------------------------------------------------|--------------------------------------------------|-----------------------------------------------------------|-------------------------------------|----------------------|----------------------------------------------------------|---------------------|-----------------------|
| <b>Test Group</b>                                                           | VHYYXV01.6SB7                                    | <b>Evaporative/Refueling Family</b>                       | VHYYXR0120SBG                       |                      |                                                          |                     |                       |
| <b>Evaporative/Refueling Family Information</b>                             |                                                  |                                                           |                                     |                      |                                                          |                     |                       |
| <b>Evaporative Summary Information Type</b>                                 | Update for Correction                            | <b>Submission/Correction Date</b>                         | 04/16/2026 12:23:01 AM              |                      |                                                          |                     |                       |
| <b>Integrated ORVR?</b>                                                     | Yes                                              | <b>Fuel(s)</b>                                            | Gasoline                            |                      |                                                          |                     |                       |
| <b>Multiple Fuel Storage</b>                                                | --                                               |                                                           |                                     |                      |                                                          |                     |                       |
| <b>Bladder Fuel Tank?</b>                                                   | No                                               |                                                           |                                     |                      |                                                          |                     |                       |
| <b>Fuel Tank Material</b>                                                   | Plastic                                          | <b>Fuel Tank Material Description</b>                     | Plastic                             |                      |                                                          |                     |                       |
| <b>Fill Pipe Seal Type</b>                                                  | Liquid seal                                      |                                                           |                                     |                      |                                                          |                     |                       |
| <b>Air Intake System Vapor Storage Device?</b>                              | Yes                                              | <b>Air Intake System Vapor Storage Device Description</b> | HC-TRAP                             |                      |                                                          |                     |                       |
| <b>Fuel System Vapor Storage Canister?</b>                                  | Yes                                              | <b>Other Vapor Storage</b>                                | --                                  |                      |                                                          |                     |                       |
| <b>Fuel System Vapor Storage Canister(s) Total Working Capacity (grams)</b> | 120                                              | <b>Number of Primary Canisters</b>                        | 1                                   |                      |                                                          |                     |                       |
| <b>Number of Bleed Canisters</b>                                            | 0                                                | <b>Bleed Canister Total Working Capacity (grams)</b>      | --                                  |                      |                                                          |                     |                       |
| <b>Mfr Evaporative/Refueling Family Comments</b>                            | --                                               |                                                           |                                     |                      |                                                          |                     |                       |
| <b>Leak Family Details</b>                                                  |                                                  |                                                           |                                     |                      |                                                          |                     |                       |
| <b>Leak Family Indicator</b>                                                | Yes                                              |                                                           |                                     |                      |                                                          |                     |                       |
| <b>Canister Bleed Test Indicator</b>                                        | Yes                                              | <b>Applicability of Evaporative Canister Bleed Test</b>   | 50 State                            |                      |                                                          |                     |                       |
| <b>Evaporative Canister Bleed Test Comments</b>                             | --                                               |                                                           |                                     |                      |                                                          |                     |                       |
| <b>CARB Fuel Only (Rig) Test Indicator</b>                                  | No                                               | <b>Applicability of CARB Fuel Only (Rig) Test</b>         | --                                  |                      |                                                          |                     |                       |
| <b>CARB Fuel Only (Rig) Test Comments</b>                                   | --                                               |                                                           |                                     |                      |                                                          |                     |                       |
| <b>Leak Family Name</b>                                                     | <b>Applicability of Leak Family Requirements</b> | <b>Leak Family Standard (inches)</b>                      | <b>Leak Family Description</b>      |                      |                                                          |                     |                       |
| VHYYXR0120SBG-QX1                                                           | 50 State                                         | 0.02                                                      | --                                  |                      |                                                          |                     |                       |
| <b>Models Covered by this Certificate</b>                                   |                                                  |                                                           |                                     |                      |                                                          |                     |                       |
| <b>Carline Manufacturer</b>                                                 | <b>Division</b>                                  | <b>Carline</b>                                            | <b>Certification Region Code(s)</b> | <b>Drive System</b>  | <b>Trans - Type</b>                                      | <b>- # of Gears</b> | <b>Trans - Lockup</b> |
| Hyundai Motor Company                                                       | 1 - HYUNDAI MOTOR COMPANY                        | 250 - Venue                                               | California + CAA Section 177 states | 2-Wheel Drive, Front | Manual                                                   | 6                   | No                    |
| Hyundai Motor Company                                                       | 1 - HYUNDAI MOTOR COMPANY                        | 250 - Venue                                               | Federal                             | 2-Wheel Drive, Front | Selectable Continuously Variable (e.g. CVT with paddles) | 1                   | Yes                   |
| Hyundai Motor Company                                                       | 1 - HYUNDAI MOTOR COMPANY                        | 250 - Venue                                               | California + CAA Section 177 states | 2-Wheel Drive, Front | Selectable Continuously Variable (e.g. CVT with paddles) | 1                   | Yes                   |
| Hyundai Motor Company                                                       | 1 - HYUNDAI MOTOR COMPANY                        | 250 - Venue                                               | Federal                             | 2-Wheel Drive, Front | Manual                                                   | 6                   | No                    |

## Certification Summary Information Report

|                                                  |                         |                                                          |                           |                               |
|--------------------------------------------------|-------------------------|----------------------------------------------------------|---------------------------|-------------------------------|
| <b>Test Group</b>                                | VHXXV01.6SB7            | <b>Evaporative/Refueling Family</b>                      | VHXXR0120SBG              |                               |
| <b>Engine Description</b>                        |                         |                                                          |                           |                               |
| <b>Hybrid Type</b>                               | --                      | <b>Hybrid Description</b>                                | --                        |                               |
| <b>Engine Type</b>                               | 4-Stroke Spark Ignition | <b>Mfr Engine Description</b>                            | --                        |                               |
| <b>Engine Block Arrangement</b>                  | Inline                  | <b>Mfr Engine Block Arrangement Description</b>          | --                        |                               |
| <b>Camless Valvetrain Indicator</b>              | No                      | <b>Oil Viscosity/Classification</b>                      | SAE 0W20                  |                               |
| <b>Number of Cylinders/Rotors</b>                | 4                       | <b>Mechanically Variable Compression Ratio Indicator</b> | N                         |                               |
| <b>After Treatment Device(s) (ATD)</b>           |                         |                                                          |                           |                               |
| <b>ATD Number</b>                                | <b>ATD Type</b>         | <b>ATD Precious Metal</b>                                | <b>Substrate Material</b> | <b>Substrate Construction</b> |
| 1                                                | Three-way catalyst      | Palladium + Rhodium                                      | Ceramic                   | Monolith                      |
| 2                                                | Three-way catalyst      | Rhodium                                                  | Ceramic                   | Monolith                      |
| <b>Mfr After Treatment Device (ATD) Comments</b> |                         |                                                          |                           |                               |
| --                                               |                         |                                                          |                           |                               |
| <b>Direct Ozone Reduction (DOR) Device</b>       |                         |                                                          |                           |                               |
| Not Equipped                                     |                         |                                                          |                           |                               |
| <b>Mfr Emission Control Device Comments</b>      |                         |                                                          |                           |                               |
| --                                               |                         |                                                          |                           |                               |
| <b>Engine Configuration Number 1</b>             |                         |                                                          |                           |                               |
| <b>Engine Displacement (liters)</b>              | 1.6                     | <b>Engine Rated Horsepower</b>                           | 121                       |                               |
| <b>Number of Inlet Valves Per Cylinder</b>       | 2                       | <b>Number of Exhaust Valves Per Cylinder</b>             | 2                         |                               |
| <b>Air Aspiration Method</b>                     | Naturally Aspirated     | <b>Number of Air Aspiration Devices</b>                  | --                        |                               |
| <b>Air Aspiration Device Configuration</b>       | --                      | <b>Charge Air Cooler Type</b>                            | --                        |                               |
| <b>Air Aspiration Drive Method(s)</b>            | Mechanical              |                                                          |                           |                               |
| <b>Cylinder Deactivation</b>                     | No                      |                                                          |                           |                               |
| <b>Cylinder Deactivation Description</b>         | --                      |                                                          |                           |                               |
| <b>Variable Valve Timing</b>                     | Yes                     |                                                          |                           |                               |
| <b>Variable Valve Timing System Description</b>  | VVT                     |                                                          |                           |                               |
| <b>Variable Valve Lift?</b>                      | No                      |                                                          |                           |                               |
| <b>Variable Valve Lift System Description</b>    | --                      |                                                          |                           |                               |
| <b>Number of Knock Sensors</b>                   | 1                       | <b>Number of Air/Fuel Sensors</b>                        | 2                         |                               |
| <b>Air/Fuel Sensor # 1 Type</b>                  | Heated oxygen           | <b>Air/Fuel Sensor # 1 Description</b>                   | --                        |                               |
| <b>Air/Fuel Sensor # 2 Type</b>                  | Other                   | <b>Air/Fuel Sensor # 2 Description</b>                   | WR-HO2S                   |                               |
| <b>Mfr Air/Fuel Sensor Comments</b>              | --                      |                                                          |                           |                               |
| <b>Exhaust Gas Recirculation</b>                 | Yes                     | <b>Cooled Exhaust Gas Recirculation</b>                  | Yes                       |                               |
| <b>EGR Type</b>                                  | Electronic/Electric     | <b>Exhaust Gas Recirculation Description if 'Other'</b>  | --                        |                               |
| <b>Closed Loop Air Injection System</b>          | No                      |                                                          |                           |                               |
| <b>Air Injection Type</b>                        | --                      | <b>Air Injection Type if 'Other'</b>                     | --                        |                               |
| <b>Mfr Engine Configuration Comments</b>         | --                      |                                                          |                           |                               |

Certification Summary Information Report

|                                    |  |              |              |              |              |                              |                       |                           |                          |                              |                       |
|------------------------------------|--|--------------|--------------|--------------|--------------|------------------------------|-----------------------|---------------------------|--------------------------|------------------------------|-----------------------|
| Test Group                         |  | VHYXV01.6SB7 |              |              |              | Evaporative/Refueling Family |                       |                           | VHYXR0120SBG             |                              |                       |
| 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                           |  | LHYX10058662 | LHYX10058664 | LHYX10058665 | LHYX10058666 | LHYX10058663                 | 34.9                  | 228.2                     | 41.5                     | 286.1                        | --                    |
| SFTP LEV-III Official Test Numbers |  |              |              |              |              |                              |                       |                           |                          |                              |                       |
| Test Group Fuel                    |  | FTP          |              |              | US06         |                              | SC03                  |                           |                          |                              |                       |
| Gasoline                           |  | LHYX10058662 |              |              | LHYX10058664 |                              | LHYX10058665          |                           |                          |                              |                       |

## Certification Summary Information Report

| <b>Test Group</b>                            | VHYXV01.6SB7                                                                                                                                                            | <b>Evaporative/Refueling Family</b>                   | VHYXR0120SBG         |      |   |                   |          |  |  |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|----------------------|------|---|-------------------|----------|--|--|
| <b>Emission Data Vehicle Information</b>     |                                                                                                                                                                         |                                                       |                      |      |   |                   |          |  |  |
| <b>Vehicle ID / Configuration</b>            | QX-U0G6MC114F / 0                                                                                                                                                       | <b>Manufacturer Vehicle Configuration Number</b>      | 0                    |      |   |                   |          |  |  |
| <b>Original Test Group Name</b>              | LHYXV01.6SB5                                                                                                                                                            | <b>Original Evaporative/Refueling Family</b>          | LHYXR0120SBG         |      |   |                   |          |  |  |
| <b>Original Test Vehicle Model Year</b>      | 2020                                                                                                                                                                    |                                                       |                      |      |   |                   |          |  |  |
| <b>Vehicle Model</b>                         |                                                                                                                                                                         |                                                       |                      |      |   |                   |          |  |  |
| <b>Represented Test Vehicle Make</b>         | HYUNDAI                                                                                                                                                                 | <b>Represented Test Vehicle Model</b>                 | Venue                |      |   |                   |          |  |  |
| <b>Leak Family Details</b>                   |                                                                                                                                                                         |                                                       |                      |      |   |                   |          |  |  |
| <b>Leak Family Identifier</b>                | QX1                                                                                                                                                                     | <b>Leak Family Name</b>                               | LHYXR0120SBG-QX1     |      |   |                   |          |  |  |
| <b>Drive Sources and Fuel System Details</b> |                                                                                                                                                                         |                                                       |                      |      |   |                   |          |  |  |
|                                              | <table border="1"> <tr> <th>Drive Source and Fuel#</th><th>Drive Source</th><th>Fuel</th></tr> <tr> <td>1</td><td>Combustion Engine</td><td>Gasoline</td></tr> </table> | Drive Source and Fuel#                                | Drive Source         | Fuel | 1 | Combustion Engine | Gasoline |  |  |
| Drive Source and Fuel#                       | Drive Source                                                                                                                                                            | Fuel                                                  |                      |      |   |                   |          |  |  |
| 1                                            | Combustion Engine                                                                                                                                                       | Gasoline                                              |                      |      |   |                   |          |  |  |
| <b>Hybrid Indicator</b>                      | No                                                                                                                                                                      |                                                       |                      |      |   |                   |          |  |  |
| <b>Multiple Fuel Storage</b>                 | --                                                                                                                                                                      | <b>Multiple Fuel Combustion</b>                       | --                   |      |   |                   |          |  |  |
| <b>Fuel Cell Indicator</b>                   | --                                                                                                                                                                      | <b>Rechargeable Energy Storage System Indicator</b>   | --                   |      |   |                   |          |  |  |
| <b>Rechargeable Energy Storage System</b>    | --                                                                                                                                                                      | <b>Rechargeable Energy Storage System, if 'Other'</b> | --                   |      |   |                   |          |  |  |
| <b>Off-board charge Capable Indicator</b>    | --                                                                                                                                                                      |                                                       |                      |      |   |                   |          |  |  |
| <b>Odometer Correction -- Initial</b>        | 0                                                                                                                                                                       | <b>Odometer Correction Factor</b>                     | 1.0214               |      |   |                   |          |  |  |
| <b>Odometer Correction Sign</b>              | - = System Miles is equal to (Test odometer reading - Initial system miles) * Correction factor                                                                         |                                                       |                      |      |   |                   |          |  |  |
| <b>Odometer Correction Units</b>             | Miles                                                                                                                                                                   |                                                       |                      |      |   |                   |          |  |  |
| <b>Engine Code</b>                           | G4FM-CV                                                                                                                                                                 | <b>Rated Horsepower</b>                               | 121                  |      |   |                   |          |  |  |
| <b>Displacement (liters)</b>                 | 1.6                                                                                                                                                                     |                                                       |                      |      |   |                   |          |  |  |
| <b>Air Aspiration Method</b>                 | Naturally Aspirated                                                                                                                                                     | <b>Air Aspiration Method, if 'Other'</b>              |                      |      |   |                   |          |  |  |
| <b>Number of Air Aspiration Devices</b>      | 0                                                                                                                                                                       | <b>Air Aspiration Device Configuration</b>            | --                   |      |   |                   |          |  |  |
| <b>Charge Air Cooler Type</b>                | --                                                                                                                                                                      | <b>Drive Mode While Testing</b>                       | 2-Wheel Drive, Front |      |   |                   |          |  |  |
| <b>Shift Indicator Light Usage</b>           | Not equipped                                                                                                                                                            | <b>Aged Emission Components</b>                       | 4,000 (mi)           |      |   |                   |          |  |  |
| <b>Curb Weight (lbs)</b>                     | 2737                                                                                                                                                                    | <b>Equivalent Test Weight (pounds)</b>                | 3000                 |      |   |                   |          |  |  |
| <b>GVWR (lbs)</b>                            | 3770                                                                                                                                                                    | <b>N/V Ratio</b>                                      | 33.5                 |      |   |                   |          |  |  |
| <b>Axle Ratio</b>                            | 6.48                                                                                                                                                                    |                                                       |                      |      |   |                   |          |  |  |
| <b>Transmission Type</b>                     | Selectable Continuously Variable (e.g. CVT with paddles)                                                                                                                | <b># of Transmission Gears</b>                        | 1                    |      |   |                   |          |  |  |
| <b>Transmission Lockup</b>                   | Yes                                                                                                                                                                     | <b>Creep Gear</b>                                     | No                   |      |   |                   |          |  |  |

Certification Summary Information Report

| Test Group                         |         | VHYXV01.6SB7             |                |                  | Evaporative/Refueling Family |                | VHYXR0120SBG                                                                     |  |
|------------------------------------|---------|--------------------------|----------------|------------------|------------------------------|----------------|----------------------------------------------------------------------------------|--|
| Dynamometer Coefficients:          |         |                          |                |                  |                              |                |                                                                                  |  |
| Target Coefficients                |         |                          |                | Set Coefficients |                              |                | EPA Calculated Total Road Load Horse Power for<br>City/Highway/Evap Coefficients |  |
| Coefficient<br>Category            | A (lbf) | B (lbf/mph)              | C (lbf/mph**2) | A (lbf)          | B (lbf/mph)                  | C (lbf/mph**2) |                                                                                  |  |
| City/Highway/Evap                  | 27.946  | -0.03502                 | 0.025288       | 2.165            | 0.34354                      | 0.020573       | 11.9                                                                             |  |
| Cold CO                            | 30.741  | -0.03852                 | 0.027817       | 0.329            | 0.11675                      | 0.024846       | N/A                                                                              |  |
| US06                               | 27.946  | -0.03502                 | 0.025288       | 2.165            | 0.34354                      | 0.020573       | N/A                                                                              |  |
| Emission Control Device Comments   |         | --                       |                |                  |                              |                |                                                                                  |  |
| Manufacturer Test Vehicle Comments |         | QX 1.6 MPI CVT ULEV 17in |                |                  |                              |                |                                                                                  |  |

## Certification Summary Information Report

| Test Group                                     | VHXYXV01.6SB7                             | Evaporative/Refueling Family          | VHXYXR0120SBG                                       |
|------------------------------------------------|-------------------------------------------|---------------------------------------|-----------------------------------------------------|
| <b>Test #</b>                                  | <b>LHXY10058662</b>                       | <b>Test Procedure</b>                 | <b>21 - Federal fuel 2-day exhaust (w/can load)</b> |
| <b>Exhaust Test # for this Evap Test</b>       | --                                        | <b>Test Fuel Type</b>                 | 48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)  |
| <b>Test Date</b>                               | 02/15/2019                                | <b>Fuel</b>                           | Gasoline                                            |
| <b>Fuel Batch ID</b>                           | 18T-02                                    | <b>Fuel Calibration Number</b>        | 1                                                   |
| <b>Vehicle Class</b>                           | LDV/Passenger Car                         | <b>DF Type</b>                        | Mfr. Determined                                     |
| <b>Verify Test Lab ID</b>                      | 772-1, Jangduck-Dong                      |                                       |                                                     |
| <b>E10 Evaporative Test Measurement Method</b> | --                                        |                                       |                                                     |
| <b>Test Start Odometer Reading</b>             | 4236                                      | <b>Odometer Units</b>                 | M                                                   |
| <b>4WD Test Dyno</b>                           | No                                        | <b>Diesel Adjustment Factor Usage</b> | --                                                  |
| <b>State of Charge Delta</b>                   | --                                        |                                       |                                                     |
| <b>Drive Cycle Speed Tolerance Criteria</b>    | Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec) | <b>Road Speed Fan Usage</b>           | Yes                                                 |

## Test Results

| Test Result Name                                   | Unrounded Test Result | Verify Calculated FE Equivalent Value (miles per gallon) |
|----------------------------------------------------|-----------------------|----------------------------------------------------------|
| CO2 BAG 1 (Bag 1 Carbon Dioxide)                   | 241                   | --                                                       |
| FE BAG 1 (Bag 1 Fuel Economy)                      | 36.2                  | 36.2                                                     |
| CO2 BAG 2 (Bag 2 Carbon Dioxide)                   | 231                   | --                                                       |
| FE BAG 2 (Bag 2 Fuel Economy)                      | 37.8                  | 37.8                                                     |
| CO2 BAG 3 (Bag 3 Carbon Dioxide)                   | 220                   | --                                                       |
| FE BAG 3 (Bag 3 Fuel Economy)                      | 39.7                  | 39.7                                                     |
| CO (Carbon Monoxide)                               | 0.04                  | --                                                       |
| DT-ASCR (Drive Trace Absolute Speed Change Rating) | 0.12                  | --                                                       |
| DT-EER (Drive Trace Energy Economy Rating)         | 1.05                  | --                                                       |
| DT-IWRR (Drive Trace Inertia Work Ratio Rating)    | 0.78                  | --                                                       |
| MFR FE (Manufacturer Fuel Economy)                 | 38                    | 38                                                       |
| NOX (Nitrogen Oxide)                               | 0.0146                | --                                                       |
| NMOG (Non-methane organic gases)                   | 0.01                  | --                                                       |
| PM (Particulate Matter)                            | 0.0002                | --                                                       |
| HC-TOTAL (Total Hydrocarbon)                       | 0.0108                | --                                                       |

| Test Result Name                 | Unrounded Test Result | Verify Calculated CREE/OPT-CREE |
|----------------------------------|-----------------------|---------------------------------|
| Carbon-Related Exhaust Emissions | 230                   | 999                             |

| Test Result Name | Unrounded Test Result | Verify Calculated CO2 |
|------------------|-----------------------|-----------------------|
| Carbon dioxide   | 230                   | --                    |

## Certification Summary Information Report

| Test Group                 |               | VHYXV01.6SB7                  |               |                |     | Evaporative/Refueling Family |                          |        |         | VHYXR0120SBG        |          |           |
|----------------------------|---------------|-------------------------------|---------------|----------------|-----|------------------------------|--------------------------|--------|---------|---------------------|----------|-----------|
| Manufacturer Test Comments |               | QX 1.6 CVT 17in (EDV) E10 FTP |               |                |     |                              |                          |        |         |                     |          |           |
| Certification Region       | Useful Life   | Standard Level                | Emission Name | Rounded Result | RAF | NMOG/NM HC Ratio             | Diesel Adjustment Factor | Add DF | Mult DF | Certification Level | Standard | Pass/Fail |
| Fed                        | 120,000 miles | Federal Tier 3 Bin 70         | CREE          | 999            | --  | --                           | --                       | 0      | --      | 999                 | --       | --        |
| Fed                        | 150,000 miles | Federal Tier 3 Bin 70         | CO            | 0.04           | --  | --                           | --                       | 0.04   | --      | 0.1                 | 1.7      | Pass      |
| Fed                        | 150,000 miles | Federal Tier 3 Bin 70         | CO-COMP       | 0.11           | --  | --                           | --                       | --     | --      | 0.1                 | 4.2      | Pass      |
| Fed                        | 150,000 miles | Federal Tier 3 Bin 70         | NMOG          | 0.0100         | --  | 1.10                         | --                       | 0.0075 | --      | 0.018               | 99.999   | Pass      |
| Fed                        | 150,000 miles | Federal Tier 3 Bin 70         | NMOG+NOX      | 0.0246         | --  | --                           | --                       | --     | --      | 0.036               | 0.070    | Pass      |
| Fed                        | 150,000 miles | Federal Tier 3 Bin 70         | NMOG+NOX-COMP | 0.0367         | --  | --                           | --                       | --     | --      | 0.037               | 0.070    | Pass      |
| Fed                        | 150,000 miles | Federal Tier 3 Bin 70         | NOX           | 0.0146         | --  | --                           | --                       | 0.0035 | --      | 0.018               | 99.999   | Pass      |
| Fed                        | 150,000 miles | Federal Tier 3 Bin 70         | PM            | 0.0002         | --  | --                           | --                       | 0.0002 | --      | 0.000               | 0.003    | Pass      |
| CA                         | 150,000 miles | California LEV-IV ULEV70      | CO            | 0.04           | --  | --                           | --                       | 0.04   | --      | 0.1                 | 1.7      | Pass      |
| CA                         | 150,000 miles | California LEV-IV ULEV70      | NMOG          | 0.0100         | --  | 1.10                         | --                       | 0.0075 | --      | 0.018               | 99.999   | Pass      |
| CA                         | 150,000 miles | California LEV-IV ULEV70      | NMOG+NOX      | 0.0246         | --  | 1.10                         | --                       | --     | --      | 0.036               | 0.070    | Pass      |
| CA                         | 150,000 miles | California LEV-IV ULEV70      | NOX           | 0.0146         | --  | --                           | --                       | 0.0035 | --      | 0.018               | 99.999   | Pass      |
| CA                         | 150,000 miles | California LEV-IV ULEV70      | PM            | 0.0002         | --  | --                           | --                       | 0.0002 | --      | 0.000               | 0.003    | Pass      |

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

## Certification Summary Information Report

| Test Group                                     | VHYXV01.6SB7                              | Evaporative/Refueling Family          | VHYXR0120SBG                               |
|------------------------------------------------|-------------------------------------------|---------------------------------------|--------------------------------------------|
| <b>Test #</b>                                  | <b>LHYX10058666</b>                       | <b>Test Procedure</b>                 | <b>11 - Cold CO</b>                        |
| <b>Exhaust Test # for this Evap Test</b>       | --                                        | <b>Test Fuel Type</b>                 | 28 - Cold CO E10 Regular Gasoline (Tier 3) |
| <b>Test Date</b>                               | 02/14/2019                                | <b>Fuel</b>                           | Gasoline                                   |
| <b>Fuel Batch ID</b>                           | 19D-01                                    | <b>Fuel Calibration Number</b>        | 1                                          |
| <b>Vehicle Class</b>                           | LDV/Passenger Car                         | <b>DF Type</b>                        | Mfr. Determined                            |
| <b>Verify Test Lab ID</b>                      | 772-1, Jangduck-Dong                      |                                       |                                            |
| <b>E10 Evaporative Test Measurement Method</b> | --                                        |                                       |                                            |
| <b>Test Start Odometer Reading</b>             | 4191                                      | <b>Odometer Units</b>                 | M                                          |
| <b>4WD Test Dyno</b>                           | No                                        | <b>Diesel Adjustment Factor Usage</b> | --                                         |
| <b>State of Charge Delta</b>                   | --                                        |                                       |                                            |
| <b>Drive Cycle Speed Tolerance Criteria</b>    | Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec) | <b>Road Speed Fan Usage</b>           | No                                         |

## Test Results

| Test Result Name                                   | Unrounded Test Result | Verify Calculated FE Equivalent Value (miles per gallon) |
|----------------------------------------------------|-----------------------|----------------------------------------------------------|
| CO2 BAG 1 (Bag 1 Carbon Dioxide)                   | 325                   | --                                                       |
| FE BAG 1 (Bag 1 Fuel Economy)                      | 26.3                  | 26.3                                                     |
| CO2 BAG 2 (Bag 2 Carbon Dioxide)                   | 281                   | --                                                       |
| FE BAG 2 (Bag 2 Fuel Economy)                      | 31                    | 31                                                       |
| CO2 BAG 3 (Bag 3 Carbon Dioxide)                   | 251                   | --                                                       |
| FE BAG 3 (Bag 3 Fuel Economy)                      | 34.7                  | 34.7                                                     |
| CO (Carbon Monoxide)                               | 0.57                  | --                                                       |
| DT-ASCR (Drive Trace Absolute Speed Change Rating) | 1.47                  | --                                                       |
| DT-EER (Drive Trace Energy Economy Rating)         | 3.01                  | --                                                       |
| DT-IWRR (Drive Trace Inertia Work Ratio Rating)    | 2.61                  | --                                                       |
| MFR FE (Manufacturer Fuel Economy)                 | 30.7                  | 30.7                                                     |
| HC-NM (Non-methane Hydrocarbon)                    | 0.1977                | --                                                       |

| Test Result Name | Unrounded Test Result | Verify Calculated CO2 |
|------------------|-----------------------|-----------------------|
| Carbon dioxide   | 282                   | --                    |

Manufacturer Test Comments QX 1.6 CVT 17in (EDV) E10 20FTP





## Certification Summary Information Report

|                                                |                                           |                                       |                                                    |
|------------------------------------------------|-------------------------------------------|---------------------------------------|----------------------------------------------------|
| <b>Test Group</b>                              | VHYXV01.6SB7                              | <b>Evaporative/Refueling Family</b>   | VHYXR0120SBG                                       |
| <b>Test #</b>                                  | <b>LHYX10058667</b>                       | <b>Test Procedure</b>                 | <b>52 - Fed. fuel 50 F exh.</b>                    |
| <b>Exhaust Test # for this Evap Test</b>       | --                                        | <b>Test Fuel Type</b>                 | 48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.) |
| <b>Test Date</b>                               | 02/01/2019                                | <b>Fuel</b>                           | Gasoline                                           |
| <b>Fuel Batch ID</b>                           | 18T-02                                    | <b>Fuel Calibration Number</b>        | 1                                                  |
| <b>Vehicle Class</b>                           | LDV/Passenger Car                         | <b>DF Type</b>                        | Mfr. Determined                                    |
| <b>Verify Test Lab ID</b>                      | 772-1, Jangduck-Dong                      |                                       |                                                    |
| <b>E10 Evaporative Test Measurement Method</b> | --                                        |                                       |                                                    |
| <b>Test Start Odometer Reading</b>             | 4136                                      | <b>Odometer Units</b>                 | M                                                  |
| <b>4WD Test Dyno</b>                           | No                                        | <b>Diesel Adjustment Factor Usage</b> | --                                                 |
| <b>State of Charge Delta</b>                   | --                                        |                                       |                                                    |
| <b>Drive Cycle Speed Tolerance Criteria</b>    | Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec) | <b>Road Speed Fan Usage</b>           | No                                                 |

## Test Results

| Test Result Name                                          | Unrounded Test Result | Verify Calculated FE Equivalent Value |
|-----------------------------------------------------------|-----------------------|---------------------------------------|
| <b>CO (Carbon Monoxide)</b>                               | 0.14                  | --                                    |
| <b>DT-ASCR (Drive Trace Absolute Speed Change Rating)</b> | -0.93                 | --                                    |
| <b>DT-EER (Drive Trace Energy Economy Rating)</b>         | 2.5                   | --                                    |
| <b>DT-IWRR (Drive Trace Inertia Work Ratio Rating)</b>    | 1.71                  | --                                    |
| <b>NOX (Nitrogen Oxide)</b>                               | 0.0237                | --                                    |
| <b>NMOG (Non-methane organic gases)</b>                   | 0.0569                | --                                    |

## Manufacturer Test Comments

QX 1.6 CVT 17in (EDV) E10 50FTP

| Certification Region | Useful Life | Standard Level           | Emission Name | Rounded Result | RAF | NMOG/NM HC Ratio | Diesel Adjustment Factor | Add DF | Mult DF | Certification Level | Standard | Pass/Fail |
|----------------------|-------------|--------------------------|---------------|----------------|-----|------------------|--------------------------|--------|---------|---------------------|----------|-----------|
| CA                   | 4,000 miles | California LEV-IV ULEV70 | CO            | 0.14           | --  | --               | --                       | 0      | --      | 0.1                 | 1.7      | Pass      |
| CA                   | 4,000 miles | California LEV-IV ULEV70 | NMOG          | 0.0569         | --  | 1.10             | --                       | 0      | --      | 0.057               | 99.999   | Pass      |
| CA                   | 4,000 miles | California LEV-IV ULEV70 | NMOG+NOX      | 0.0806         | --  | 1.10             | --                       | --     | --      | 0.081               | 0.140    | Pass      |
| CA                   | 4,000 miles | California LEV-IV ULEV70 | NOX           | 0.0237         | --  | --               | --                       | 0      | --      | 0.024               | 99.999   | Pass      |

## Certification Summary Information Report

| Test Group                                     | VHXXV01.6SB7                              | Evaporative/Refueling Family          | VHXXR0120SBG                                        |
|------------------------------------------------|-------------------------------------------|---------------------------------------|-----------------------------------------------------|
| <b>Test #</b>                                  | <b>LHXX91004325</b>                       | <b>Test Procedure</b>                 | <b>21 - Federal fuel 2-day exhaust (w/can load)</b> |
| <b>Exhaust Test # for this Evap Test</b>       | --                                        | <b>Test Fuel Type</b>                 | 61 - Tier 2 Cert Gasoline                           |
| <b>Test Date</b>                               | 06/26/2019                                | <b>Fuel</b>                           | Gasoline                                            |
| <b>Fuel Batch ID</b>                           | 27340                                     | <b>Fuel Calibration Number</b>        | 1                                                   |
| <b>Vehicle Class</b>                           | LDV/Passenger Car                         | <b>DF Type</b>                        | Mfr. Determined                                     |
| <b>Verify Test Lab ID</b>                      | --                                        |                                       |                                                     |
| <b>E10 Evaporative Test Measurement Method</b> | --                                        |                                       |                                                     |
| <b>Test Start Odometer Reading</b>             | 4678                                      | <b>Odometer Units</b>                 | M                                                   |
| <b>4WD Test Dyno</b>                           | No                                        | <b>Diesel Adjustment Factor Usage</b> | --                                                  |
| <b>State of Charge Delta</b>                   | --                                        |                                       |                                                     |
| <b>Drive Cycle Speed Tolerance Criteria</b>    | Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec) | <b>Road Speed Fan Usage</b>           | No                                                  |

## Test Results

| Test Result Name                                   | Unrounded Test Result | Verify Calculated FE Equivalent Value (miles per gallon) |
|----------------------------------------------------|-----------------------|----------------------------------------------------------|
| CO2 BAG 1 (Bag 1 Carbon Dioxide)                   | 249.2810012           | --                                                       |
| FE BAG 1 (Bag 1 Fuel Economy)                      | 35.650696             | --                                                       |
| CO2 BAG 2 (Bag 2 Carbon Dioxide)                   | 237.075199            | --                                                       |
| FE BAG 2 (Bag 2 Fuel Economy)                      | 37.5831155            | --                                                       |
| CO2 BAG 3 (Bag 3 Carbon Dioxide)                   | 227.5790817           | --                                                       |
| FE BAG 3 (Bag 3 Fuel Economy)                      | 39.147468             | --                                                       |
| METHANE (CH4 - Methane)                            | 0.0017325             | --                                                       |
| CO (Carbon Monoxide)                               | 0.075697              | --                                                       |
| DT-ASCR (Drive Trace Absolute Speed Change Rating) | 0.097495              | --                                                       |
| DT-EER (Drive Trace Energy Economy Rating)         | 1.178694              | --                                                       |
| DT-IWRR (Drive Trace Inertia Work Ratio Rating)    | 0.146966              | --                                                       |
| MFR FE (Manufacturer Fuel Economy)                 | 37.5725747            | --                                                       |
| NOX (Nitrogen Oxide)                               | 0.0152231             | --                                                       |
| N2O (Nitrous Oxide)                                | 0.0014028             | --                                                       |
| HC-NM (Non-methane Hydrocarbon)                    | 0.015949              | --                                                       |
| NMOG (Non-methane organic gases)                   | 0.0165869             | --                                                       |
| HC-TOTAL (Total Hydrocarbon)                       | 0.0175575             | --                                                       |

| Test Result Name                          | Unrounded Test Result | Verify Calculated CREE/OPT-CREE |
|-------------------------------------------|-----------------------|---------------------------------|
| Carbon-Related Exhaust Emissions          | 237                   | 237                             |
| Optional Carbon-Related Exhaust Emissions | 238                   | 238                             |

## Certification Summary Information Report

| Test Group                                                                                                              |               | VHYXV01.6SB7                         |               |                       | Evaporative/Refueling Family |                  |                          |        | VHYXR0120SBG |                     |          |           |
|-------------------------------------------------------------------------------------------------------------------------|---------------|--------------------------------------|---------------|-----------------------|------------------------------|------------------|--------------------------|--------|--------------|---------------------|----------|-----------|
|                                                                                                                         |               | Test Result Name                     |               | Unrounded Test Result |                              |                  | Verify Calculated CO2    |        |              |                     |          |           |
|                                                                                                                         |               | Carbon dioxide                       |               | 236.9990518           |                              |                  | --                       |        |              |                     |          |           |
| Manufacturer Test Comments                                                                                              |               | NMOG=1.04 x NMHC TC CREE calculated. |               |                       |                              |                  |                          |        |              |                     |          |           |
| Certification Region                                                                                                    | Useful Life   | Standard Level                       | Emission Name | Rounded Result        | RAF                          | NMOG/NM HC Ratio | Diesel Adjustment Factor | Add DF | Mult DF      | Certification Level | Standard | Pass/Fail |
| Fed                                                                                                                     | 120,000 miles | Federal Tier 3 Bin 70                | CREE          | 237                   | --                           | --               | --                       | 0      | --           | 237                 | --       | --        |
| Fed                                                                                                                     | 120,000 miles | Federal Tier 3 Bin 70                | METHANE       | 0.0017                | --                           | --               | --                       | 0.0000 | --           | 0.002               | 0.030    | Pass      |
| Fed                                                                                                                     | 120,000 miles | Federal Tier 3 Bin 70                | N2O           | 0.0014                | --                           | --               | --                       | 0.0013 | --           | 0.003               | 0.010    | Pass      |
| Fed                                                                                                                     | 150,000 miles | Federal Tier 3 Bin 70                | CO            | 0.08                  | --                           | --               | --                       | 0.04   | --           | 0.1                 | 1.7      | Pass      |
| Fed                                                                                                                     | 150,000 miles | Federal Tier 3 Bin 70                | NMOG          | 0.0166                | --                           | 1.10             | --                       | 0.0075 | --           | 0.024               | 99.999   | Pass      |
| Fed                                                                                                                     | 150,000 miles | Federal Tier 3 Bin 70                | NMOG+NOX      | 0.0318                | --                           | --               | --                       | --     | --           | 0.043               | 0.070    | Pass      |
| Fed                                                                                                                     | 150,000 miles | Federal Tier 3 Bin 70                | NOX           | 0.0152                | --                           | --               | --                       | 0.0035 | --           | 0.019               | 99.999   | Pass      |
| CA                                                                                                                      | 150,000 miles | California LEV-IV ULEV70             | CO            | 0.08                  | --                           | --               | --                       | 0.04   | --           | 0.1                 | 1.7      | Pass      |
| CA                                                                                                                      | 150,000 miles | California LEV-IV ULEV70             | NMOG          | 0.0166                | --                           | 1.10             | --                       | 0.0075 | --           | 0.024               | 99.999   | Pass      |
| CA                                                                                                                      | 150,000 miles | California LEV-IV ULEV70             | NMOG+NOX      | 0.0318                | --                           | 1.10             | --                       | --     | --           | 0.043               | 0.070    | Pass      |
| CA                                                                                                                      | 150,000 miles | California LEV-IV ULEV70             | NOX           | 0.0152                | --                           | --               | --                       | 0.0035 | --           | 0.019               | 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                                     | VHXXV01.6SB7                              | Evaporative/Refueling Family          | VHXXR0120SBG                                       |
|------------------------------------------------|-------------------------------------------|---------------------------------------|----------------------------------------------------|
| <b>Test #</b>                                  | <b>LHXX10058663</b>                       | <b>Test Procedure</b>                 | <b>3 - HWFE</b>                                    |
| <b>Exhaust Test # for this Evap Test</b>       | --                                        | <b>Test Fuel Type</b>                 | 48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.) |
| <b>Test Date</b>                               | 02/15/2019                                | <b>Fuel</b>                           | Gasoline                                           |
| <b>Fuel Batch ID</b>                           | 18T-02                                    | <b>Fuel Calibration Number</b>        | 1                                                  |
| <b>Vehicle Class</b>                           | LDV/Passenger Car                         | <b>DF Type</b>                        | Mfr. Determined                                    |
| <b>Verify Test Lab ID</b>                      | 772-1, Jangduck-Dong                      |                                       |                                                    |
| <b>E10 Evaporative Test Measurement Method</b> | --                                        |                                       |                                                    |
| <b>Test Start Odometer Reading</b>             | 4247                                      | <b>Odometer Units</b>                 | M                                                  |
| <b>4WD Test Dyno</b>                           | No                                        | <b>Diesel Adjustment Factor Usage</b> | --                                                 |
| <b>State of Charge Delta</b>                   | --                                        |                                       |                                                    |
| <b>Drive Cycle Speed Tolerance Criteria</b>    | Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec) | <b>Road Speed Fan Usage</b>           | Yes                                                |

## Test Results

| Test Result Name                                   | Unrounded Test Result | Verify Calculated FE Equivalent Value (miles per gallon) |
|----------------------------------------------------|-----------------------|----------------------------------------------------------|
| CO (Carbon Monoxide)                               | 0.03                  | --                                                       |
| DT-ASCR (Drive Trace Absolute Speed Change Rating) | 5.72                  | --                                                       |
| DT-EER (Drive Trace Energy Economy Rating)         | 0.31                  | --                                                       |
| DT-IWRR (Drive Trace Inertia Work Ratio Rating)    | 6.54                  | --                                                       |
| MFR FE (Manufacturer Fuel Economy)                 | 49                    | 49                                                       |
| NOX (Nitrogen Oxide)                               | 0.0083                | --                                                       |
| NMOG (Non-methane organic gases)                   | 0.002                 | --                                                       |
| HC-TOTAL (Total Hydrocarbon)                       | 0.0022                | --                                                       |

| Test Result Name                 | Unrounded Test Result | Verify Calculated CREE/OPT-CREE |
|----------------------------------|-----------------------|---------------------------------|
| Carbon-Related Exhaust Emissions | 178                   | 999                             |

| Test Result Name | Unrounded Test Result | Verify Calculated CO2 |
|------------------|-----------------------|-----------------------|
| Carbon dioxide   | 178                   | --                    |

**Manufacturer Test Comments** QX 1.6 CVT 17in (EDV) E10 hwy C#1: DT-EER

## Certification Summary Information Report

| Test Group           |               | VHYXV01.6SB7             |               |                |     | Evaporative/Refueling Family |                          |        |         | VHYXR0120SBG        |          |           |
|----------------------|---------------|--------------------------|---------------|----------------|-----|------------------------------|--------------------------|--------|---------|---------------------|----------|-----------|
| Certification Region | Useful Life   | Standard Level           | Emission Name | Rounded Result | RAF | NMOG/NM HC Ratio             | Diesel Adjustment Factor | Add DF | Mult DF | Certification Level | Standard | Pass/Fail |
| Fed                  | 120,000 miles | Federal Tier 3 Bin 70    | CREE          | 999            | --  | --                           | --                       | 0      | --      | 999                 | --       | --        |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 70    | NMOG          | 0.0020         | --  | 1.03                         | --                       | 0.0075 | --      | 0.010               | 99.999   | Pass      |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 70    | NMOG+NOX      | 0.0103         | --  | 1.03                         | --                       | --     | --      | 0.021               | 0.070    | Pass      |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 70    | NOX           | 0.0083         | --  | --                           | --                       | 0.0035 | --      | 0.012               | 99.999   | Pass      |
| CA                   | 150,000 miles | California LEV-IV ULEV70 | NMOG          | 0.0020         | --  | 1.03                         | --                       | 0.0075 | --      | 0.010               | 99.999   | Pass      |
| CA                   | 150,000 miles | California LEV-IV ULEV70 | NMOG+NOX      | 0.0103         | --  | 1.03                         | --                       | --     | --      | 0.021               | 0.070    | Pass      |
| CA                   | 150,000 miles | California LEV-IV ULEV70 | NOX           | 0.0083         | --  | --                           | --                       | 0.0035 | --      | 0.012               | 99.999   | Pass      |

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

## Certification Summary Information Report

| Test Group                                     | VHXXV01.6SB7                              | Evaporative/Refueling Family          | VHXXR0120SBG              |
|------------------------------------------------|-------------------------------------------|---------------------------------------|---------------------------|
| <b>Test #</b>                                  | <b>LHXX91004324</b>                       | <b>Test Procedure</b>                 | <b>3 - HWFE</b>           |
| <b>Exhaust Test # for this Evap Test</b>       | --                                        | <b>Test Fuel Type</b>                 | 61 - Tier 2 Cert Gasoline |
| <b>Test Date</b>                               | 06/26/2019                                | <b>Fuel</b>                           | Gasoline                  |
| <b>Fuel Batch ID</b>                           | 27340                                     | <b>Fuel Calibration Number</b>        | 1                         |
| <b>Vehicle Class</b>                           | LDV/Passenger Car                         | <b>DF Type</b>                        | Mfr. Determined           |
| <b>Verify Test Lab ID</b>                      | --                                        |                                       |                           |
| <b>E10 Evaporative Test Measurement Method</b> | --                                        |                                       |                           |
| <b>Test Start Odometer Reading</b>             | 4688                                      | <b>Odometer Units</b>                 | M                         |
| <b>4WD Test Dyno</b>                           | No                                        | <b>Diesel Adjustment Factor Usage</b> | --                        |
| <b>State of Charge Delta</b>                   | --                                        |                                       |                           |
| <b>Drive Cycle Speed Tolerance Criteria</b>    | Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec) | <b>Road Speed Fan Usage</b>           | No                        |

## Test Results

| Test Result Name                                          | Unrounded Test Result | Verify Calculated FE Equivalent Value (miles per gallon) |
|-----------------------------------------------------------|-----------------------|----------------------------------------------------------|
| <b>METHANE (CH4 - Methane)</b>                            | 0.0008595             | --                                                       |
| <b>CO (Carbon Monoxide)</b>                               | 0.0195646             | --                                                       |
| <b>DT-ASCR (Drive Trace Absolute Speed Change Rating)</b> | 3.674681              | --                                                       |
| <b>DT-EER (Drive Trace Energy Economy Rating)</b>         | 0.06868               | --                                                       |
| <b>DT-IWRR (Drive Trace Inertia Work Ratio Rating)</b>    | 4.663603              | --                                                       |
| <b>MFR FE (Manufacturer Fuel Economy)</b>                 | 48.8462378            | --                                                       |
| <b>NOX (Nitrogen Oxide)</b>                               | 0.0047938             | --                                                       |
| <b>HC-NM (Non-methane Hydrocarbon)</b>                    | 0.0022304             | --                                                       |
| <b>NMOG (Non-methane organic gases)</b>                   | 0.0023196             | --                                                       |
| <b>HC-TOTAL (Total Hydrocarbon)</b>                       | 0.0030285             | --                                                       |

| Test Result Name                        | Unrounded Test Result | Verify Calculated CREE/OPT-CREE |
|-----------------------------------------|-----------------------|---------------------------------|
| <b>Carbon-Related Exhaust Emissions</b> | 182                   | 182                             |

| Test Result Name      | Unrounded Test Result | Verify Calculated CO2 |
|-----------------------|-----------------------|-----------------------|
| <b>Carbon dioxide</b> | 182.3961094           | --                    |

## Manufacturer Test Comments

NMOG=1.04 x NMHC TC N2O Not Measured. OPT-CREE not determined. CREE calculated.

## Certification Summary Information Report

| Test Group           |               | VHYXV01.6SB7             |               |                | Evaporative/Refueling Family |                  |                          |        |         | VHYXR0120SBG        |          |           |
|----------------------|---------------|--------------------------|---------------|----------------|------------------------------|------------------|--------------------------|--------|---------|---------------------|----------|-----------|
| Certification Region | Useful Life   | Standard Level           | Emission Name | Rounded Result | RAF                          | NMOG/NM HC Ratio | Diesel Adjustment Factor | Add DF | Mult DF | Certification Level | Standard | Pass/Fail |
| Fed                  | 120,000 miles | Federal Tier 3 Bin 70    | CREE          | 182            | --                           | --               | --                       | 0      | --      | 182                 | --       | --        |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 70    | NMOG          | 0.0023         | --                           | 1.03             | --                       | 0.0075 | --      | 0.010               | 99.999   | Pass      |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 70    | NMOG+NOX      | 0.0071         | --                           | 1.03             | --                       | --     | --      | 0.018               | 0.070    | Pass      |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 70    | NOX           | 0.0048         | --                           | --               | --                       | 0.0035 | --      | 0.008               | 99.999   | Pass      |
| CA                   | 150,000 miles | California LEV-IV ULEV70 | NMOG          | 0.0023         | --                           | 1.03             | --                       | 0.0075 | --      | 0.010               | 99.999   | Pass      |
| CA                   | 150,000 miles | California LEV-IV ULEV70 | NMOG+NOX      | 0.0071         | --                           | 1.03             | --                       | --     | --      | 0.018               | 0.070    | Pass      |
| CA                   | 150,000 miles | California LEV-IV ULEV70 | NOX           | 0.0048         | --                           | --               | --                       | 0.0035 | --      | 0.008               | 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                                     | VHXXV01.6SB7                              | Evaporative/Refueling Family          | VHXXR0120SBG                                       |
|------------------------------------------------|-------------------------------------------|---------------------------------------|----------------------------------------------------|
| <b>Test #</b>                                  | <b>LHXX10058664</b>                       | <b>Test Procedure</b>                 | <b>90 - US06</b>                                   |
| <b>Exhaust Test # for this Evap Test</b>       | --                                        | <b>Test Fuel Type</b>                 | 48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.) |
| <b>Test Date</b>                               | 02/15/2019                                | <b>Fuel</b>                           | Gasoline                                           |
| <b>Fuel Batch ID</b>                           | 18T-02                                    | <b>Fuel Calibration Number</b>        | 1                                                  |
| <b>Vehicle Class</b>                           | LDV/Passenger Car                         | <b>DF Type</b>                        | Mfr. Determined                                    |
| <b>Verify Test Lab ID</b>                      | 772-1, Jangduck-Dong                      |                                       |                                                    |
| <b>E10 Evaporative Test Measurement Method</b> | --                                        |                                       |                                                    |
| <b>Test Start Odometer Reading</b>             | 4266                                      | <b>Odometer Units</b>                 | M                                                  |
| <b>4WD Test Dyno</b>                           | No                                        | <b>Diesel Adjustment Factor Usage</b> | --                                                 |
| <b>State of Charge Delta</b>                   | --                                        |                                       |                                                    |
| <b>Drive Cycle Speed Tolerance Criteria</b>    | Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec) | <b>Road Speed Fan Usage</b>           | Yes                                                |

## Test Results

| Test Result Name                                   | Unrounded Test Result | Verify Calculated FE Equivalent Value (miles per gallon) |
|----------------------------------------------------|-----------------------|----------------------------------------------------------|
| CO2 BAG 1 (Bag 1 Carbon Dioxide)                   | 392                   | --                                                       |
| FE BAG 1 (Bag 1 Fuel Economy)                      | 22.3                  | 22.3                                                     |
| CO2 BAG 2 (Bag 2 Carbon Dioxide)                   | 252                   | --                                                       |
| FE BAG 2 (Bag 2 Fuel Economy)                      | 34.6                  | 34.6                                                     |
| CO (Carbon Monoxide)                               | 0.13                  | --                                                       |
| DT-ASCR (Drive Trace Absolute Speed Change Rating) | -1.54                 | --                                                       |
| DT-EER (Drive Trace Energy Economy Rating)         | 2.44                  | --                                                       |
| DT-IWRR (Drive Trace Inertia Work Ratio Rating)    | -1.51                 | --                                                       |
| MFR FE (Manufacturer Fuel Economy)                 | 30.8                  | 30.8                                                     |
| NOX (Nitrogen Oxide)                               | 0.0224                | --                                                       |
| NMOG (Non-methane organic gases)                   | 0.0072                | --                                                       |
| PM (Particulate Matter)                            | 0.002                 | --                                                       |
| HC-TOTAL (Total Hydrocarbon)                       | 0.0081                | --                                                       |

| Test Result Name | Unrounded Test Result | Verify Calculated CO2 |
|------------------|-----------------------|-----------------------|
| Carbon dioxide   | 283                   | --                    |

**Manufacturer Test Comments** QX 1.6 CVT 17in (EDV) E10 us06

## Certification Summary Information Report

| Test Group           |               | VHYXV01.6SB7             |               |                |     | Evaporative/Refueling Family |                          |        |         | VHYXR0120SBG        |          |           |
|----------------------|---------------|--------------------------|---------------|----------------|-----|------------------------------|--------------------------|--------|---------|---------------------|----------|-----------|
| Certification Region | Useful Life   | Standard Level           | Emission Name | Rounded Result | RAF | NMOG/NM HC Ratio             | Diesel Adjustment Factor | Add DF | Mult DF | Certification Level | Standard | Pass/Fail |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 70    | CO            | 0.1300         | --  | --                           | --                       | 0.04   | --      | 0.170               | 99.999   | Pass      |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 70    | NMOG          | 0.0072         | --  | 1.03                         | --                       | 0.0075 | --      | 0.015               | 99.999   | Pass      |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 70    | NOX           | 0.0224         | --  | --                           | --                       | 0.0035 | --      | 0.026               | 99.999   | Pass      |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 70    | PM            | 0.0020         | --  | --                           | --                       | 0.0002 | --      | 0.002               | 0.006    | Pass      |
| CA                   | 150,000 miles | California LEV-IV ULEV70 | CO            | 0.13           | --  | --                           | --                       | 0.04   | --      | 0.2                 | 9.6      | Pass      |
| CA                   | 150,000 miles | California LEV-IV ULEV70 | NMOG          | 0.0072         | --  | 1.03                         | --                       | 0.0075 | --      | 0.015               | 99.999   | Pass      |
| CA                   | 150,000 miles | California LEV-IV ULEV70 | NMOG+NOX      | 0.0296         | --  | --                           | --                       | --     | --      | 0.041               | 0.084    | Pass      |
| CA                   | 150,000 miles | California LEV-IV ULEV70 | NOX           | 0.0224         | --  | --                           | --                       | 0.0035 | --      | 0.026               | 99.999   | Pass      |
| CA                   | 150,000 miles | California LEV-IV ULEV70 | PM            | 0.0020         | --  | --                           | --                       | 0.0002 | --      | 0.002               | 0.006    | Pass      |

## Certification Summary Information Report

| Test Group                                     | VHYXV01.6SB7                              | Evaporative/Refueling Family          | VHYXR0120SBG                                       |
|------------------------------------------------|-------------------------------------------|---------------------------------------|----------------------------------------------------|
| <b>Test #</b>                                  | <b>LHYX10058665</b>                       | <b>Test Procedure</b>                 | <b>95 - SC03</b>                                   |
| <b>Exhaust Test # for this Evap Test</b>       | --                                        | <b>Test Fuel Type</b>                 | 48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.) |
| <b>Test Date</b>                               | 03/05/2019                                | <b>Fuel</b>                           | Gasoline                                           |
| <b>Fuel Batch ID</b>                           | 18T-02                                    | <b>Fuel Calibration Number</b>        | 1                                                  |
| <b>Vehicle Class</b>                           | LDV/Passenger Car                         | <b>DF Type</b>                        | Mfr. Determined                                    |
| <b>Verify Test Lab ID</b>                      | 772-1, Jangduck-Dong                      |                                       |                                                    |
| <b>E10 Evaporative Test Measurement Method</b> | --                                        |                                       |                                                    |
| <b>Test Start Odometer Reading</b>             | 4385                                      | <b>Odometer Units</b>                 | M                                                  |
| <b>4WD Test Dyno</b>                           | No                                        | <b>Diesel Adjustment Factor Usage</b> | --                                                 |
| <b>State of Charge Delta</b>                   | --                                        |                                       |                                                    |
| <b>Drive Cycle Speed Tolerance Criteria</b>    | Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec) | <b>Road Speed Fan Usage</b>           | Yes                                                |

## Test Results

| Test Result Name                                          | Unrounded Test Result | Verify Calculated FE Equivalent Value (miles per gallon) |
|-----------------------------------------------------------|-----------------------|----------------------------------------------------------|
| <b>CO (Carbon Monoxide)</b>                               | 0.04                  | --                                                       |
| <b>DT-ASCR (Drive Trace Absolute Speed Change Rating)</b> | -0.54                 | --                                                       |
| <b>DT-EER (Drive Trace Energy Economy Rating)</b>         | 1.31                  | --                                                       |
| <b>DT-IWRR (Drive Trace Inertia Work Ratio Rating)</b>    | 0.23                  | --                                                       |
| <b>MFR FE (Manufacturer Fuel Economy)</b>                 | 26.7                  | 26.7                                                     |
| <b>NOX (Nitrogen Oxide)</b>                               | 0.0172                | --                                                       |
| <b>NMOG (Non-methane organic gases)</b>                   | 0.0066                | --                                                       |
| <b>HC-TOTAL (Total Hydrocarbon)</b>                       | 0.0085                | --                                                       |

| Test Result Name      | Unrounded Test Result | Verify Calculated CO2 |
|-----------------------|-----------------------|-----------------------|
| <b>Carbon dioxide</b> | 327                   | --                    |

**Manufacturer Test Comments** QX 1.6 CVT 17in (EDV) E10 sc03

## Certification Summary Information Report

| Test Group           |               | VHYXV01.6SB7             |               |                |     | Evaporative/Refueling Family |                          |        |         | VHYXR0120SBG        |          |           |
|----------------------|---------------|--------------------------|---------------|----------------|-----|------------------------------|--------------------------|--------|---------|---------------------|----------|-----------|
| Certification Region | Useful Life   | Standard Level           | Emission Name | Rounded Result | RAF | NMOG/NM HC Ratio             | Diesel Adjustment Factor | Add DF | Mult DF | Certification Level | Standard | Pass/Fail |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 70    | CO            | 0.0400         | --  | --                           | --                       | 0.04   | --      | 0.080               | 99.999   | Pass      |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 70    | NMOG          | 0.0066         | --  | 1.03                         | --                       | 0.0075 | --      | 0.014               | 99.999   | Pass      |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 70    | NOX           | 0.0172         | --  | --                           | --                       | 0.0035 | --      | 0.021               | 99.999   | Pass      |
| CA                   | 150,000 miles | California LEV-IV ULEV70 | CO            | 0.04           | --  | --                           | --                       | 0.04   | --      | 0.1                 | 1.7      | Pass      |
| CA                   | 150,000 miles | California LEV-IV ULEV70 | NMOG          | 0.0066         | --  | 1.03                         | --                       | 0.0075 | --      | 0.014               | 99.999   | Pass      |
| CA                   | 150,000 miles | California LEV-IV ULEV70 | NMOG+NOX      | 0.0238         | --  | --                           | --                       | --     | --      | 0.035               | 0.070    | Pass      |
| CA                   | 150,000 miles | California LEV-IV ULEV70 | NOX           | 0.0172         | --  | --                           | --                       | 0.0035 | --      | 0.021               | 99.999   | Pass      |

## Certification Summary Information Report

| <b>Test Group</b>                            | VHYXV01.6SB7                                                                                                                                                            | <b>Evaporative/Refueling Family</b>                   | VHYXR0120SBG                                                                         |      |   |                   |          |  |  |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|--------------------------------------------------------------------------------------|------|---|-------------------|----------|--|--|
| <b>Emission Data Vehicle Information</b>     |                                                                                                                                                                         |                                                       |                                                                                      |      |   |                   |          |  |  |
| <b>Vehicle ID / Configuration</b>            | QX-U0G6MC120F / 0                                                                                                                                                       | <b>Manufacturer Vehicle Configuration Number</b>      | 0                                                                                    |      |   |                   |          |  |  |
| <b>Original Test Group Name</b>              | LHYXV01.6SB5                                                                                                                                                            | <b>Original Evaporative/Refueling Family</b>          | LHYXR0120SBG                                                                         |      |   |                   |          |  |  |
| <b>Original Test Vehicle Model Year</b>      | 2020                                                                                                                                                                    |                                                       |                                                                                      |      |   |                   |          |  |  |
| <b>Vehicle Model</b>                         |                                                                                                                                                                         |                                                       |                                                                                      |      |   |                   |          |  |  |
| <b>Represented Test Vehicle Make</b>         | HYUNDAI                                                                                                                                                                 | <b>Represented Test Vehicle Model</b>                 | Venue                                                                                |      |   |                   |          |  |  |
| <b>Leak Family Details</b>                   |                                                                                                                                                                         |                                                       |                                                                                      |      |   |                   |          |  |  |
| <b>Leak Family Identifier</b>                | QX1                                                                                                                                                                     | <b>Leak Family Name</b>                               | LHYXR0120SBG-QX1                                                                     |      |   |                   |          |  |  |
| <b>Drive Sources and Fuel System Details</b> |                                                                                                                                                                         |                                                       |                                                                                      |      |   |                   |          |  |  |
|                                              | <table border="1"> <tr> <th>Drive Source and Fuel#</th><th>Drive Source</th><th>Fuel</th></tr> <tr> <td>1</td><td>Combustion Engine</td><td>Gasoline</td></tr> </table> | Drive Source and Fuel#                                | Drive Source                                                                         | Fuel | 1 | Combustion Engine | Gasoline |  |  |
| Drive Source and Fuel#                       | Drive Source                                                                                                                                                            | Fuel                                                  |                                                                                      |      |   |                   |          |  |  |
| 1                                            | Combustion Engine                                                                                                                                                       | Gasoline                                              |                                                                                      |      |   |                   |          |  |  |
| <b>Hybrid Indicator</b>                      | No                                                                                                                                                                      |                                                       |                                                                                      |      |   |                   |          |  |  |
| <b>Multiple Fuel Storage</b>                 | --                                                                                                                                                                      | <b>Multiple Fuel Combustion</b>                       | --                                                                                   |      |   |                   |          |  |  |
| <b>Fuel Cell Indicator</b>                   | --                                                                                                                                                                      | <b>Rechargeable Energy Storage System Indicator</b>   | --                                                                                   |      |   |                   |          |  |  |
| <b>Rechargeable Energy Storage System</b>    | --                                                                                                                                                                      | <b>Rechargeable Energy Storage System, if 'Other'</b> | --                                                                                   |      |   |                   |          |  |  |
| <b>Off-board charge Capable Indicator</b>    | --                                                                                                                                                                      |                                                       |                                                                                      |      |   |                   |          |  |  |
| <b>Odometer Correction -- Initial</b>        | 0                                                                                                                                                                       | <b>Odometer Correction Factor</b>                     | 1.0725                                                                               |      |   |                   |          |  |  |
| <b>Odometer Correction Sign</b>              | - = System Miles is equal to (Test odometer reading - Initial system miles) * Correction factor                                                                         |                                                       |                                                                                      |      |   |                   |          |  |  |
| <b>Odometer Correction Units</b>             | Miles                                                                                                                                                                   |                                                       |                                                                                      |      |   |                   |          |  |  |
| <b>Engine Code</b>                           | G4FM-CV                                                                                                                                                                 | <b>Rated Horsepower</b>                               | 121                                                                                  |      |   |                   |          |  |  |
| <b>Displacement (liters)</b>                 | 1.6                                                                                                                                                                     |                                                       |                                                                                      |      |   |                   |          |  |  |
| <b>Air Aspiration Method</b>                 | Naturally Aspirated                                                                                                                                                     | <b>Air Aspiration Method, if 'Other'</b>              |                                                                                      |      |   |                   |          |  |  |
| <b>Number of Air Aspiration Devices</b>      | 0                                                                                                                                                                       | <b>Air Aspiration Device Configuration</b>            | --                                                                                   |      |   |                   |          |  |  |
| <b>Charge Air Cooler Type</b>                | --                                                                                                                                                                      | <b>Drive Mode While Testing</b>                       | 2-Wheel Drive, Front                                                                 |      |   |                   |          |  |  |
| <b>Shift Indicator Light Usage</b>           | Not equipped                                                                                                                                                            | <b>Aged Emission Components</b>                       | 4,000 (mi)                                                                           |      |   |                   |          |  |  |
| <b>Curb Weight (lbs)</b>                     | 2737                                                                                                                                                                    | <b>Equivalent Test Weight (pounds)</b>                | 3000                                                                                 |      |   |                   |          |  |  |
| <b>GVWR (lbs)</b>                            | 3770                                                                                                                                                                    | <b>N/V Ratio</b>                                      | 33.5                                                                                 |      |   |                   |          |  |  |
| <b>Axle Ratio</b>                            | 6.48                                                                                                                                                                    |                                                       |                                                                                      |      |   |                   |          |  |  |
| <b>Transmission Type</b>                     | Selectable Continuously Variable (e.g. CVT with paddles)                                                                                                                | <b># of Transmission Gears</b>                        | 1                                                                                    |      |   |                   |          |  |  |
| <b>Transmission Lockup</b>                   | Yes                                                                                                                                                                     | <b>Creep Gear</b>                                     | No                                                                                   |      |   |                   |          |  |  |
| <b>Dynamometer Coefficients:</b>             |                                                                                                                                                                         |                                                       |                                                                                      |      |   |                   |          |  |  |
|                                              | <b>Target Coefficients</b>                                                                                                                                              |                                                       |                                                                                      |      |   |                   |          |  |  |
|                                              | <b>Set Coefficients</b>                                                                                                                                                 |                                                       |                                                                                      |      |   |                   |          |  |  |
| <b>Coefficient Category</b>                  | <b>A (lbf)</b>                                                                                                                                                          | <b>B (lbf/mph)</b>                                    | <b>C (lbf/mph**2)</b>                                                                |      |   |                   |          |  |  |
| <b>City/Highway/Evap</b>                     | 27.946                                                                                                                                                                  | -0.03502                                              | 0.025288                                                                             |      |   |                   |          |  |  |
|                                              |                                                                                                                                                                         | <b>A (lbf)</b>                                        | <b>B (lbf/mph)</b>                                                                   |      |   |                   |          |  |  |
|                                              |                                                                                                                                                                         | -0.992                                                | 0.34447                                                                              |      |   |                   |          |  |  |
|                                              |                                                                                                                                                                         |                                                       | <b>C (lbf/mph**2)</b>                                                                |      |   |                   |          |  |  |
|                                              |                                                                                                                                                                         |                                                       | 0.004485                                                                             |      |   |                   |          |  |  |
|                                              |                                                                                                                                                                         |                                                       | <b>EPA Calculated Total Road Load Horse Power for City/Highway/Evap Coefficients</b> |      |   |                   |          |  |  |
|                                              |                                                                                                                                                                         |                                                       | 11.9                                                                                 |      |   |                   |          |  |  |

## Certification Summary Information Report

| <b>Test Group</b>                                                                                                                                                                                                                                                          | VHXYV01.6SB7                               | <b>Evaporative/Refueling Family</b>                      | VHXYR0120SBG                        |                       |                       |                                                          |                                                           |                  |    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|----------------------------------------------------------|-------------------------------------|-----------------------|-----------------------|----------------------------------------------------------|-----------------------------------------------------------|------------------|----|
| <b>Emission Control Device Comments</b>                                                                                                                                                                                                                                    | --                                         |                                                          |                                     |                       |                       |                                                          |                                                           |                  |    |
| <b>Manufacturer Test Vehicle Comments</b>                                                                                                                                                                                                                                  | QX 1.6 MPI CVT ULEV 17in (Evap EDV)        |                                                          |                                     |                       |                       |                                                          |                                                           |                  |    |
| <b>Test #</b>                                                                                                                                                                                                                                                              | <b>LHXY10058703</b>                        | <b>Test Procedure</b>                                    | <b>38 - CA fuel 3-day evap.</b>     |                       |                       |                                                          |                                                           |                  |    |
| <b>Exhaust Test # for this Evap Test</b>                                                                                                                                                                                                                                   | LHXY10058701                               | <b>Test Fuel Type</b>                                    | 46 - CARB LEV3 E10 Regular Gasoline |                       |                       |                                                          |                                                           |                  |    |
| <b>Test Date</b>                                                                                                                                                                                                                                                           | 03/15/2019                                 | <b>Fuel</b>                                              | Gasoline                            |                       |                       |                                                          |                                                           |                  |    |
| <b>Fuel Batch ID</b>                                                                                                                                                                                                                                                       | 19E-01                                     | <b>Fuel Calibration Number</b>                           | 1                                   |                       |                       |                                                          |                                                           |                  |    |
| <b>Vehicle Class</b>                                                                                                                                                                                                                                                       | N/A                                        | <b>DF Type</b>                                           | Mfr. Determined                     |                       |                       |                                                          |                                                           |                  |    |
| <b>Verify Test Lab ID</b>                                                                                                                                                                                                                                                  | 772-1, Jangduck-Dong                       |                                                          |                                     |                       |                       |                                                          |                                                           |                  |    |
| <b>E10 Evaporative Test Measurement Method</b>                                                                                                                                                                                                                             | Calculated (1.08 x FID Total Hydrocarbons) |                                                          |                                     |                       |                       |                                                          |                                                           |                  |    |
| <b>Test Start Odometer Reading</b>                                                                                                                                                                                                                                         | 4103                                       | <b>Odometer Units</b>                                    | M                                   |                       |                       |                                                          |                                                           |                  |    |
| <b>4WD Test Dyno</b>                                                                                                                                                                                                                                                       | No                                         | <b>Diesel Adjustment Factor Usage</b>                    | --                                  |                       |                       |                                                          |                                                           |                  |    |
| <b>State of Charge Delta</b>                                                                                                                                                                                                                                               | --                                         |                                                          |                                     |                       |                       |                                                          |                                                           |                  |    |
| <b>Drive Cycle Speed Tolerance Criteria</b>                                                                                                                                                                                                                                | Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)  | <b>Road Speed Fan Usage</b>                              | Yes                                 |                       |                       |                                                          |                                                           |                  |    |
| <b>Test Results</b>                                                                                                                                                                                                                                                        |                                            |                                                          |                                     |                       |                       |                                                          |                                                           |                  |    |
| <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>0.213</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) | 0.213            | -- |
| Test Result Name                                                                                                                                                                                                                                                           | Unrounded Test Result                      | Verify Calculated FE Equivalent Value (miles per gallon) |                                     |                       |                       |                                                          |                                                           |                  |    |
| HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)                                                                                                                                                                                                                  | 0.213                                      | --                                                       |                                     |                       |                       |                                                          |                                                           |                  |    |
| <b>Manufacturer Test Comments</b>                                                                                                                                                                                                                                          |                                            |                                                          |                                     |                       |                       |                                                          |                                                           |                  |    |
| 20MY qx 1.6 cvt 17in - 3Day EVAP Correction:Typo in test result (0.1891->0.2130)                                                                                                                                                                                           |                                            |                                                          |                                     |                       |                       |                                                          |                                                           |                  |    |
| <b>Certification Region</b>                                                                                                                                                                                                                                                | <b>Useful Life</b>                         | <b>Standard Level</b>                                    | <b>Emission Name</b>                | <b>Rounded Result</b> | <b>Add DF</b>         | <b>Certification Level</b>                               | <b>Standard</b>                                           | <b>Pass/Fail</b> |    |
| Fed                                                                                                                                                                                                                                                                        | 150,000 miles                              | Federal Tier 3 Evap                                      | HC-TOTAL-EQUIV                      | 0.2130                | 0                     | 0.213                                                    | 0.300                                                     | Pass             |    |
| CA                                                                                                                                                                                                                                                                         | 150,000 miles                              | California LEV-IV Zero Evap (Option 2)                   | HC-TOTAL-EQUIV                      | 0.2130                | 0                     | 0.213                                                    | 0.300                                                     | Pass             |    |

## Certification Summary Information Report

| Test Group                                     | VHXXV01.6SB7                               | Evaporative/Refueling Family          | VHXXR0120SBG                           |
|------------------------------------------------|--------------------------------------------|---------------------------------------|----------------------------------------|
| <b>Test #</b>                                  | <b>LHXX91004424</b>                        | <b>Test Procedure</b>                 | <b>27 - California fuel 2-day evap</b> |
| <b>Exhaust Test # for this Evap Test</b>       | LHXX91004422                               | <b>Test Fuel Type</b>                 | 46 - CARB LEV3 E10 Regular             |
| <b>Test Date</b>                               | 08/20/2019                                 | <b>Fuel</b>                           | Gasoline                               |
| <b>Fuel Batch ID</b>                           | 26757                                      | <b>Fuel Calibration Number</b>        | 1                                      |
| <b>Vehicle Class</b>                           | N/A                                        | <b>DF Type</b>                        | Mfr. Determined                        |
| <b>Verify Test Lab ID</b>                      | --                                         |                                       |                                        |
| <b>E10 Evaporative Test Measurement Method</b> | Calculated (1.08 x FID Total Hydrocarbons) |                                       |                                        |
| <b>Test Start Odometer Reading</b>             | 4345.1                                     | <b>Odometer Units</b>                 | M                                      |
| <b>4WD Test Dyno</b>                           | No                                         | <b>Diesel Adjustment Factor Usage</b> | --                                     |
| <b>State of Charge Delta</b>                   | --                                         |                                       |                                        |
| <b>Drive Cycle Speed Tolerance Criteria</b>    | Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)  | <b>Road Speed Fan Usage</b>           | No                                     |

## Test Results

| Test Result Name                                          | Unrounded Test Result | Verify Calculated FE Equivalent Value |
|-----------------------------------------------------------|-----------------------|---------------------------------------|
| HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only) | 0.249562              | --                                    |

## Manufacturer Test Comments

Hot\_Soak\_HC\_(g) = 0.016006, Diurnal (gHC) = 0.233556

| 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 | 0.2496         | 0      | 0.250               | 0.300    | Pass      |
| CA                   | 150,000 miles | California LEV-IV Zero Evap (Option 2) | HC-TOTAL-EQUIV | 0.2496         | 0      | 0.250               | 0.300    | Pass      |

## Certification Summary Information Report

| Test Group                                                                                                                                                                                                                                                                                                   | VHYXV01.6SB7                               | Evaporative/Refueling Family                             | VHYXR0120SBG                                       |                       |                       |                                                          |                                                           |                  |    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|----------------------------------------------------------|----------------------------------------------------|-----------------------|-----------------------|----------------------------------------------------------|-----------------------------------------------------------|------------------|----|
| <b>Test #</b>                                                                                                                                                                                                                                                                                                | <b>LHYX10058706</b>                        | <b>Test Procedure</b>                                    | <b>24 - Federal fuel refueling test (ORVR)</b>     |                       |                       |                                                          |                                                           |                  |    |
| <b>Exhaust Test # for this Evap Test</b>                                                                                                                                                                                                                                                                     | LHYX10058705                               | <b>Test Fuel Type</b>                                    | 48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.) |                       |                       |                                                          |                                                           |                  |    |
| <b>Test Date</b>                                                                                                                                                                                                                                                                                             | 03/20/2019                                 | <b>Fuel</b>                                              | Gasoline                                           |                       |                       |                                                          |                                                           |                  |    |
| <b>Fuel Batch ID</b>                                                                                                                                                                                                                                                                                         | 18T-02                                     | <b>Fuel Calibration Number</b>                           | 1                                                  |                       |                       |                                                          |                                                           |                  |    |
| <b>Vehicle Class</b>                                                                                                                                                                                                                                                                                         | N/A                                        | <b>DF Type</b>                                           | Mfr. Determined                                    |                       |                       |                                                          |                                                           |                  |    |
| <b>Verify Test Lab ID</b>                                                                                                                                                                                                                                                                                    | 772-1, Jangduck-Dong                       |                                                          |                                                    |                       |                       |                                                          |                                                           |                  |    |
| <b>E10 Evaporative Test Measurement Method</b>                                                                                                                                                                                                                                                               | Calculated (1.08 x FID Total Hydrocarbons) |                                                          |                                                    |                       |                       |                                                          |                                                           |                  |    |
| <b>Test Start Odometer Reading</b>                                                                                                                                                                                                                                                                           | 4125                                       | <b>Odometer Units</b>                                    | M                                                  |                       |                       |                                                          |                                                           |                  |    |
| <b>4WD Test Dyno</b>                                                                                                                                                                                                                                                                                         | No                                         | <b>Diesel Adjustment Factor Usage</b>                    | --                                                 |                       |                       |                                                          |                                                           |                  |    |
| <b>State of Charge Delta</b>                                                                                                                                                                                                                                                                                 | --                                         |                                                          |                                                    |                       |                       |                                                          |                                                           |                  |    |
| <b>Drive Cycle Speed Tolerance Criteria</b>                                                                                                                                                                                                                                                                  | Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)  | <b>Road Speed Fan Usage</b>                              | Yes                                                |                       |                       |                                                          |                                                           |                  |    |
| <b>Test Results</b>                                                                                                                                                                                                                                                                                          |                                            |                                                          |                                                    |                       |                       |                                                          |                                                           |                  |    |
| <table border="1"> <thead> <tr> <th>Test Result Name</th> <th>Unrounded Test Result</th> <th>Verify Calculated FE Equivalent Value (miles per gallon)</th> </tr> </thead> <tbody> <tr> <td>HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)</td> <td>0.006</td> <td>--</td> </tr> </tbody> </table> |                                            |                                                          |                                                    | Test Result Name      | Unrounded Test Result | Verify Calculated FE Equivalent Value (miles per gallon) | HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only) | 0.006            | -- |
| Test Result Name                                                                                                                                                                                                                                                                                             | Unrounded Test Result                      | Verify Calculated FE Equivalent Value (miles per gallon) |                                                    |                       |                       |                                                          |                                                           |                  |    |
| HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)                                                                                                                                                                                                                                                    | 0.006                                      | --                                                       |                                                    |                       |                       |                                                          |                                                           |                  |    |
| <b>Manufacturer Test Comments</b>                                                                                                                                                                                                                                                                            |                                            |                                                          |                                                    |                       |                       |                                                          |                                                           |                  |    |
| 20MY qx 1.6 cvt 17in - ORVR                                                                                                                                                                                                                                                                                  |                                            |                                                          |                                                    |                       |                       |                                                          |                                                           |                  |    |
| <b>Certification Region</b>                                                                                                                                                                                                                                                                                  | <b>Useful Life</b>                         | <b>Standard Level</b>                                    | <b>Emission Name</b>                               | <b>Rounded Result</b> | <b>Add DF</b>         | <b>Certification Level</b>                               | <b>Standard</b>                                           | <b>Pass/Fail</b> |    |
| Fed                                                                                                                                                                                                                                                                                                          | 150,000 miles                              | Federal Tier 3 Evap                                      | HC-TOTAL-EQUIV                                     | 0.006                 | 0.002                 | 0.01                                                     | 0.20                                                      | Pass             |    |
| CA                                                                                                                                                                                                                                                                                                           | 150,000 miles                              | California LEV-IV Zero Evap (Option 2)                   | HC-TOTAL-EQUIV                                     | 0.006                 | 0.002                 | 0.01                                                     | 0.20                                                      | Pass             |    |



## Certification Summary Information Report

| <b>Test Group</b>                                                                                                                                                                                                                                                                  | VHYXV01.6SB7                               | <b>Evaporative/Refueling Family</b>                      | VHYXR0120SBG                             |                       |                       |                                                          |                                                                  |                  |    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|----------------------------------------------------------|------------------------------------------|-----------------------|-----------------------|----------------------------------------------------------|------------------------------------------------------------------|------------------|----|
| <b>Test #</b>                                                                                                                                                                                                                                                                      | <b>LHYX10058707</b>                        | <b>Test Procedure</b>                                    | <b>37 - California Fuel Running Loss</b> |                       |                       |                                                          |                                                                  |                  |    |
| <b>Exhaust Test # for this Evap Test</b>                                                                                                                                                                                                                                           | LHYX10058701                               | <b>Test Fuel Type</b>                                    | 46 - CARB LEV3 E10 Regular Gasoline      |                       |                       |                                                          |                                                                  |                  |    |
| <b>Test Date</b>                                                                                                                                                                                                                                                                   | 03/15/2019                                 | <b>Fuel</b>                                              | Gasoline                                 |                       |                       |                                                          |                                                                  |                  |    |
| <b>Fuel Batch ID</b>                                                                                                                                                                                                                                                               | 19E-01                                     | <b>Fuel Calibration Number</b>                           | 1                                        |                       |                       |                                                          |                                                                  |                  |    |
| <b>Vehicle Class</b>                                                                                                                                                                                                                                                               | N/A                                        | <b>DF Type</b>                                           | Mfr. Determined                          |                       |                       |                                                          |                                                                  |                  |    |
| <b>Verify Test Lab ID</b>                                                                                                                                                                                                                                                          | 772-1, Jangduck-Dong                       |                                                          |                                          |                       |                       |                                                          |                                                                  |                  |    |
| <b>E10 Evaporative Test Measurement Method</b>                                                                                                                                                                                                                                     | Calculated (1.08 x FID Total Hydrocarbons) |                                                          |                                          |                       |                       |                                                          |                                                                  |                  |    |
| <b>Test Start Odometer Reading</b>                                                                                                                                                                                                                                                 | 4103                                       | <b>Odometer Units</b>                                    | M                                        |                       |                       |                                                          |                                                                  |                  |    |
| <b>4WD Test Dyno</b>                                                                                                                                                                                                                                                               | No                                         | <b>Diesel Adjustment Factor Usage</b>                    | --                                       |                       |                       |                                                          |                                                                  |                  |    |
| <b>State of Charge Delta</b>                                                                                                                                                                                                                                                       | --                                         |                                                          |                                          |                       |                       |                                                          |                                                                  |                  |    |
| <b>Drive Cycle Speed Tolerance Criteria</b>                                                                                                                                                                                                                                        | Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)  | <b>Road Speed Fan Usage</b>                              | Yes                                      |                       |                       |                                                          |                                                                  |                  |    |
| <b>Test Results</b>                                                                                                                                                                                                                                                                |                                            |                                                          |                                          |                       |                       |                                                          |                                                                  |                  |    |
| <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><b>HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)</b></td> <td>0.0004</td> <td>--</td> </tr> </table> |                                            |                                                          |                                          | Test Result Name      | Unrounded Test Result | Verify Calculated FE Equivalent Value (miles per gallon) | <b>HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)</b> | 0.0004           | -- |
| Test Result Name                                                                                                                                                                                                                                                                   | Unrounded Test Result                      | Verify Calculated FE Equivalent Value (miles per gallon) |                                          |                       |                       |                                                          |                                                                  |                  |    |
| <b>HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)</b>                                                                                                                                                                                                                   | 0.0004                                     | --                                                       |                                          |                       |                       |                                                          |                                                                  |                  |    |
| <b>Manufacturer Test Comments</b>                                                                                                                                                                                                                                                  |                                            |                                                          |                                          |                       |                       |                                                          |                                                                  |                  |    |
| 20MY qx 1.6 cvt 17in - Running Loss                                                                                                                                                                                                                                                |                                            |                                                          |                                          |                       |                       |                                                          |                                                                  |                  |    |
| <b>Certification Region</b>                                                                                                                                                                                                                                                        | <b>Useful Life</b>                         | <b>Standard Level</b>                                    | <b>Emission Name</b>                     | <b>Rounded Result</b> | <b>Add DF</b>         | <b>Certification Level</b>                               | <b>Standard</b>                                                  | <b>Pass/Fail</b> |    |
| Fed                                                                                                                                                                                                                                                                                | 150,000 miles                              | Federal Tier 3 Evap                                      | HC-TOTAL-EQUIV                           | 0.000                 | 0                     | 0.00                                                     | 0.05                                                             | Pass             |    |
| CA                                                                                                                                                                                                                                                                                 | 150,000 miles                              | California LEV-IV Zero Evap (Option 2)                   | HC-TOTAL-EQUIV                           | 0.000                 | 0                     | 0.00                                                     | 0.05                                                             | Pass             |    |

## Certification Summary Information Report

| <b>Test Group</b>                                                                                                                                                                                                                             | VHXXV01.6SB7                               | <b>Evaporative/Refueling Family</b>                      | VHXXR0120SBG                         |                       |                       |                                                          |                              |                  |    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|----------------------------------------------------------|--------------------------------------|-----------------------|-----------------------|----------------------------------------------------------|------------------------------|------------------|----|
| <b>Test #</b>                                                                                                                                                                                                                                 | <b>LHXX10058708</b>                        | <b>Test Procedure</b>                                    | <b>65 - Evap Canister Bleed Test</b> |                       |                       |                                                          |                              |                  |    |
| <b>Exhaust Test # for this Evap Test</b>                                                                                                                                                                                                      | --                                         | <b>Test Fuel Type</b>                                    | 46 - CARB LEV3 E10 Regular Gasoline  |                       |                       |                                                          |                              |                  |    |
| <b>Test Date</b>                                                                                                                                                                                                                              | 04/03/2019                                 | <b>Fuel</b>                                              | Gasoline                             |                       |                       |                                                          |                              |                  |    |
| <b>Fuel Batch ID</b>                                                                                                                                                                                                                          | 19E-01                                     | <b>Fuel Calibration Number</b>                           | 1                                    |                       |                       |                                                          |                              |                  |    |
| <b>Vehicle Class</b>                                                                                                                                                                                                                          | N/A                                        | <b>DF Type</b>                                           | Mfr. Determined                      |                       |                       |                                                          |                              |                  |    |
| <b>Verify Test Lab ID</b>                                                                                                                                                                                                                     | 772-1, Jangduck-Dong                       |                                                          |                                      |                       |                       |                                                          |                              |                  |    |
| <b>E10 Evaporative Test Measurement Method</b>                                                                                                                                                                                                | Calculated (1.08 x FID Total Hydrocarbons) |                                                          |                                      |                       |                       |                                                          |                              |                  |    |
| <b>Test Start Odometer Reading</b>                                                                                                                                                                                                            | 4126                                       | <b>Odometer Units</b>                                    | M                                    |                       |                       |                                                          |                              |                  |    |
| <b>4WD Test Dyno</b>                                                                                                                                                                                                                          | No                                         | <b>Diesel Adjustment Factor Usage</b>                    | --                                   |                       |                       |                                                          |                              |                  |    |
| <b>State of Charge Delta</b>                                                                                                                                                                                                                  | --                                         |                                                          |                                      |                       |                       |                                                          |                              |                  |    |
| <b>Drive Cycle Speed Tolerance Criteria</b>                                                                                                                                                                                                   | Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)  | <b>Road Speed Fan Usage</b>                              | No                                   |                       |                       |                                                          |                              |                  |    |
| <b>Test Results</b>                                                                                                                                                                                                                           |                                            |                                                          |                                      |                       |                       |                                                          |                              |                  |    |
| <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>0.007</td> <td>--</td> </tr> </table> |                                            |                                                          |                                      | Test Result Name      | Unrounded Test Result | Verify Calculated FE Equivalent Value (miles per gallon) | HC-TOTAL (Total Hydrocarbon) | 0.007            | -- |
| Test Result Name                                                                                                                                                                                                                              | Unrounded Test Result                      | Verify Calculated FE Equivalent Value (miles per gallon) |                                      |                       |                       |                                                          |                              |                  |    |
| HC-TOTAL (Total Hydrocarbon)                                                                                                                                                                                                                  | 0.007                                      | --                                                       |                                      |                       |                       |                                                          |                              |                  |    |
| <b>Manufacturer Test Comments</b>                                                                                                                                                                                                             |                                            |                                                          |                                      |                       |                       |                                                          |                              |                  |    |
| 20MY QX 1.6 CVT 17IN - Canister Bleed                                                                                                                                                                                                         |                                            |                                                          |                                      |                       |                       |                                                          |                              |                  |    |
| <b>Certification Region</b>                                                                                                                                                                                                                   | <b>Useful Life</b>                         | <b>Standard Level</b>                                    | <b>Emission Name</b>                 | <b>Rounded Result</b> | <b>Add DF</b>         | <b>Certification Level</b>                               | <b>Standard</b>              | <b>Pass/Fail</b> |    |
| Fed                                                                                                                                                                                                                                           | 150,000 miles                              | Federal Tier 3 Evap                                      | HC-TOTAL                             | 0.0070                | 0                     | 0.007                                                    | 0.020                        | Pass             |    |
| CA                                                                                                                                                                                                                                            | 150,000 miles                              | California LEV-IV Zero Evap (Option 2)                   | HC-TOTAL                             | 0.0070                | 0                     | 0.007                                                    | 0.020                        | Pass             |    |

## Certification Summary Information Report

|                                                                                                                                                                                                                                                                   |                                           |                                              |                                                    |                         |                              |                                              |                                                    |                  |    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|----------------------------------------------|----------------------------------------------------|-------------------------|------------------------------|----------------------------------------------|----------------------------------------------------|------------------|----|
| <b>Test Group</b>                                                                                                                                                                                                                                                 | VHYXV01.6SB7                              | <b>Evaporative/Refueling Family</b>          | VHYXR0120SBG                                       |                         |                              |                                              |                                                    |                  |    |
| <b>Test #</b>                                                                                                                                                                                                                                                     | <b>LHYX10058709</b>                       | <b>Test Procedure</b>                        | <b>68 - Leak Test - Port Near Fuel Pipe</b>        |                         |                              |                                              |                                                    |                  |    |
| <b>Exhaust Test # for this Evap Test</b>                                                                                                                                                                                                                          | --                                        | <b>Test Fuel Type</b>                        | 48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.) |                         |                              |                                              |                                                    |                  |    |
| <b>Test Date</b>                                                                                                                                                                                                                                                  | 03/25/2019                                | <b>Fuel</b>                                  | Gasoline                                           |                         |                              |                                              |                                                    |                  |    |
| <b>Fuel Batch ID</b>                                                                                                                                                                                                                                              | 18T-02                                    | <b>Fuel Calibration Number</b>               | 1                                                  |                         |                              |                                              |                                                    |                  |    |
| <b>Vehicle Class</b>                                                                                                                                                                                                                                              | N/A                                       | <b>DF Type</b>                               | Mfr. Determined                                    |                         |                              |                                              |                                                    |                  |    |
| <b>Verify Test Lab ID</b>                                                                                                                                                                                                                                         | 772-1, Jangduck-Dong                      |                                              |                                                    |                         |                              |                                              |                                                    |                  |    |
| <b>E10 Evaporative Test Measurement Method</b>                                                                                                                                                                                                                    | --                                        |                                              |                                                    |                         |                              |                                              |                                                    |                  |    |
| <b>Test Start Odometer Reading</b>                                                                                                                                                                                                                                | 4126                                      | <b>Odometer Units</b>                        | M                                                  |                         |                              |                                              |                                                    |                  |    |
| <b>4WD Test Dyno</b>                                                                                                                                                                                                                                              | No                                        | <b>Diesel Adjustment Factor Usage</b>        | --                                                 |                         |                              |                                              |                                                    |                  |    |
| <b>State of Charge Delta</b>                                                                                                                                                                                                                                      | --                                        |                                              |                                                    |                         |                              |                                              |                                                    |                  |    |
| <b>Drive Cycle Speed Tolerance Criteria</b>                                                                                                                                                                                                                       | Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec) | <b>Road Speed Fan Usage</b>                  | Yes                                                |                         |                              |                                              |                                                    |                  |    |
| <b>Test Results</b>                                                                                                                                                                                                                                               |                                           |                                              |                                                    |                         |                              |                                              |                                                    |                  |    |
| <table border="1"> <tr> <td><b>Test Result Name</b></td> <td><b>Unrounded Test Result</b></td> <td><b>Verify Calculated FE Equivalent Value</b></td> </tr> <tr> <td><b>LEAK-DIA (Effective Leak Diameter (inches))</b></td> <td>0</td> <td>--</td> </tr> </table> |                                           |                                              |                                                    | <b>Test Result Name</b> | <b>Unrounded Test Result</b> | <b>Verify Calculated FE Equivalent Value</b> | <b>LEAK-DIA (Effective Leak Diameter (inches))</b> | 0                | -- |
| <b>Test Result Name</b>                                                                                                                                                                                                                                           | <b>Unrounded Test Result</b>              | <b>Verify Calculated FE Equivalent Value</b> |                                                    |                         |                              |                                              |                                                    |                  |    |
| <b>LEAK-DIA (Effective Leak Diameter (inches))</b>                                                                                                                                                                                                                | 0                                         | --                                           |                                                    |                         |                              |                                              |                                                    |                  |    |
| <b>Manufacturer Test Comments</b>                                                                                                                                                                                                                                 |                                           |                                              |                                                    |                         |                              |                                              |                                                    |                  |    |
| 20MY QX 1.6 CVT 17IN - Leak test_Port Near Fuel Pipe                                                                                                                                                                                                              |                                           |                                              |                                                    |                         |                              |                                              |                                                    |                  |    |
| <b>Certification Region</b>                                                                                                                                                                                                                                       | <b>Useful Life</b>                        | <b>Standard Level</b>                        | <b>Emission Name</b>                               | <b>Rounded Result</b>   | <b>Add DF</b>                | <b>Certification Level</b>                   | <b>Standard</b>                                    | <b>Pass/Fail</b> |    |
| Fed                                                                                                                                                                                                                                                               | 150,000 miles                             | Federal Tier 3 Evap                          | LEAK-DIA                                           | 0.0000                  | 0                            | 0.000                                        | 0.020                                              | Pass             |    |
| CA                                                                                                                                                                                                                                                                | 150,000 miles                             | California LEV-IV Zero Evap (Option 2)       | LEAK-DIA                                           | 0.000                   | 0                            | 0.00                                         | 0.02                                               | Pass             |    |

## Certification Summary Information Report

| <b>Test Group</b>                                                                                                                                                                                                                     | VHYXV01.6SB7                              | <b>Evaporative/Refueling Family</b>    | VHYXR0120SBG                                       |                       |                       |                                       |                                             |                  |    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|----------------------------------------|----------------------------------------------------|-----------------------|-----------------------|---------------------------------------|---------------------------------------------|------------------|----|
| <b>Test #</b>                                                                                                                                                                                                                         | <b>LHYX10058710</b>                       | <b>Test Procedure</b>                  | <b>67 - Leak Test - Port Near Canister</b>         |                       |                       |                                       |                                             |                  |    |
| <b>Exhaust Test # for this Evap Test</b>                                                                                                                                                                                              | --                                        | <b>Test Fuel Type</b>                  | 48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.) |                       |                       |                                       |                                             |                  |    |
| <b>Test Date</b>                                                                                                                                                                                                                      | 03/25/2019                                | <b>Fuel</b>                            | Gasoline                                           |                       |                       |                                       |                                             |                  |    |
| <b>Fuel Batch ID</b>                                                                                                                                                                                                                  | 18T-02                                    | <b>Fuel Calibration Number</b>         | 1                                                  |                       |                       |                                       |                                             |                  |    |
| <b>Vehicle Class</b>                                                                                                                                                                                                                  | N/A                                       | <b>DF Type</b>                         | Mfr. Determined                                    |                       |                       |                                       |                                             |                  |    |
| <b>Verify Test Lab ID</b>                                                                                                                                                                                                             | 772-1, Jangduck-Dong                      |                                        |                                                    |                       |                       |                                       |                                             |                  |    |
| <b>E10 Evaporative Test Measurement Method</b>                                                                                                                                                                                        | --                                        |                                        |                                                    |                       |                       |                                       |                                             |                  |    |
| <b>Test Start Odometer Reading</b>                                                                                                                                                                                                    | 4126                                      | <b>Odometer Units</b>                  | M                                                  |                       |                       |                                       |                                             |                  |    |
| <b>4WD Test Dyno</b>                                                                                                                                                                                                                  | No                                        | <b>Diesel Adjustment Factor Usage</b>  | --                                                 |                       |                       |                                       |                                             |                  |    |
| <b>State of Charge Delta</b>                                                                                                                                                                                                          | --                                        |                                        |                                                    |                       |                       |                                       |                                             |                  |    |
| <b>Drive Cycle Speed Tolerance Criteria</b>                                                                                                                                                                                           | Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec) | <b>Road Speed Fan Usage</b>            | Yes                                                |                       |                       |                                       |                                             |                  |    |
| <b>Test Results</b>                                                                                                                                                                                                                   |                                           |                                        |                                                    |                       |                       |                                       |                                             |                  |    |
| <table border="1"> <tr> <th>Test Result Name</th> <th>Unrounded Test Result</th> <th>Verify Calculated FE Equivalent Value</th> </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                                         | --                                     |                                                    |                       |                       |                                       |                                             |                  |    |
| <b>Manufacturer Test Comments</b>                                                                                                                                                                                                     |                                           |                                        |                                                    |                       |                       |                                       |                                             |                  |    |
| 20MY QX 1.6 CVT 17IN - Leak test_Port Near canister                                                                                                                                                                                   |                                           |                                        |                                                    |                       |                       |                                       |                                             |                  |    |
| <b>Certification Region</b>                                                                                                                                                                                                           | <b>Useful Life</b>                        | <b>Standard Level</b>                  | <b>Emission Name</b>                               | <b>Rounded Result</b> | <b>Add DF</b>         | <b>Certification Level</b>            | <b>Standard</b>                             | <b>Pass/Fail</b> |    |
| Fed                                                                                                                                                                                                                                   | 150,000 miles                             | Federal Tier 3 Evap                    | LEAK-DIA                                           | 0.0000                | 0                     | 0.000                                 | 0.020                                       | Pass             |    |
| CA                                                                                                                                                                                                                                    | 150,000 miles                             | California LEV-IV Zero Evap (Option 2) | LEAK-DIA                                           | 0.000                 | 0                     | 0.00                                  | 0.02                                        | Pass             |    |

## Certification Summary Information Report

| Test Group                                                                | VHXYV01.6SB7                                       | Evaporative/Refueling Family                                              | VHXYR0120SBG |
|---------------------------------------------------------------------------|----------------------------------------------------|---------------------------------------------------------------------------|--------------|
| <b>Fuel Properties</b>                                                    |                                                    |                                                                           |              |
| <b>Fuel Batch ID</b>                                                      | <b>19E-01</b>                                      | <b>Fuel Calibration Number</b>                                            | <b>1</b>     |
| <b>Test Fuel Type</b>                                                     | 46 - CARB LEV3 E10 Regular Gasoline                | <b>Fuel Batch Calibration Date</b>                                        | 12/18/2018   |
| <b>Fuel Batch Calibration Effective Date</b>                              | 12/18/2018                                         | <b>Fuel Batch Calibration Ineffective Date</b>                            | 12/18/2019   |
| <b>Carbon Weight Fraction NMHC</b>                                        | --                                                 | <b>Carbon Weight Fraction HC</b>                                          | --           |
| <b>Exhaust Carbon Weight Fraction</b>                                     | --                                                 | <b>Fuel Methanol Volume Fraction</b>                                      | --           |
| <b>Fuel Density (grams/cubic ft)</b>                                      | --                                                 | <b>Fuel Specific Gravity</b>                                              | 0.751        |
| <b>Fuel Ethanol Volume Percent (%)</b>                                    | 9.7                                                | <b>Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)</b> | 17802        |
| <b>Fuel Net Heat of Combustion (E10) (MJ/kg)</b>                          | --                                                 | <b>Fuel Carbon Mass Fraction (E10)</b>                                    | --           |
| <b>Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0)</b> | 0.832                                              | <b>Weight Fraction CO2</b>                                                | --           |
| <b>Fuel Batch ID</b>                                                      | <b>18T-02</b>                                      | <b>Fuel Calibration Number</b>                                            | <b>1</b>     |
| <b>Test Fuel Type</b>                                                     | 48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.) | <b>Fuel Batch Calibration Date</b>                                        | 12/10/2018   |
| <b>Fuel Batch Calibration Effective Date</b>                              | 12/11/2018                                         | <b>Fuel Batch Calibration Ineffective Date</b>                            | 12/11/2019   |
| <b>Carbon Weight Fraction NMHC</b>                                        | --                                                 | <b>Carbon Weight Fraction HC</b>                                          | --           |
| <b>Exhaust Carbon Weight Fraction</b>                                     | --                                                 | <b>Fuel Methanol Volume Fraction</b>                                      | --           |
| <b>Fuel Density (grams/cubic ft)</b>                                      | --                                                 | <b>Fuel Specific Gravity</b>                                              | 0.745        |
| <b>Fuel Ethanol Volume Percent (%)</b>                                    | 10.1                                               | <b>Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)</b> | 17781        |
| <b>Fuel Net Heat of Combustion (E10) (MJ/kg)</b>                          | --                                                 | <b>Fuel Carbon Mass Fraction (E10)</b>                                    | --           |
| <b>Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0)</b> | 0.83                                               | <b>Weight Fraction CO2</b>                                                | --           |
| <b>Fuel Batch ID</b>                                                      | <b>27340</b>                                       | <b>Fuel Calibration Number</b>                                            | <b>1</b>     |
| <b>Test Fuel Type</b>                                                     | 61 - Tier 2 Cert Gasoline                          | <b>Fuel Batch Calibration Date</b>                                        | 05/29/2019   |
| <b>Fuel Batch Calibration Effective Date</b>                              | 05/29/2019                                         | <b>Fuel Batch Calibration Ineffective Date</b>                            | --           |
| <b>Carbon Weight Fraction NMHC</b>                                        | --                                                 | <b>Carbon Weight Fraction HC</b>                                          | --           |
| <b>Exhaust Carbon Weight Fraction</b>                                     | --                                                 | <b>Fuel Methanol Volume Fraction</b>                                      | --           |
| <b>Fuel Density (grams/cubic ft)</b>                                      | --                                                 | <b>Fuel Specific Gravity</b>                                              | 0.742        |
| <b>Fuel Ethanol Volume Percent (%)</b>                                    | --                                                 | <b>Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)</b> | 18443        |
| <b>Fuel Net Heat of Combustion (E10) (MJ/kg)</b>                          | --                                                 | <b>Fuel Carbon Mass Fraction (E10)</b>                                    | --           |
| <b>Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0)</b> | 0.867                                              | <b>Weight Fraction CO2</b>                                                | --           |
| <b>Fuel Batch ID</b>                                                      | <b>19D-01</b>                                      | <b>Fuel Calibration Number</b>                                            | <b>1</b>     |
| <b>Test Fuel Type</b>                                                     | 28 - Cold CO E10 Regular Gasoline (Tier 3)         | <b>Fuel Batch Calibration Date</b>                                        | 12/18/2018   |
| <b>Fuel Batch Calibration Effective Date</b>                              | 12/18/2018                                         | <b>Fuel Batch Calibration Ineffective Date</b>                            | 12/18/2019   |
| <b>Carbon Weight Fraction NMHC</b>                                        | --                                                 | <b>Carbon Weight Fraction HC</b>                                          | --           |
| <b>Exhaust Carbon Weight Fraction</b>                                     | --                                                 | <b>Fuel Methanol Volume Fraction</b>                                      | --           |

## Certification Summary Information Report

| Test Group                                                         | VHYYXV01.6SB7                       | Evaporative/Refueling Family                                       | VHYYXR0120SBG |
|--------------------------------------------------------------------|-------------------------------------|--------------------------------------------------------------------|---------------|
| Fuel Density (grams/cubic ft)                                      | --                                  | Fuel Specific Gravity                                              | 0.743         |
| Fuel Ethanol Volume Percent (%)                                    | 10.1                                | Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb) | 17804         |
| Fuel Net Heat of Combustion (E10) (MJ/kg)                          | --                                  | Fuel Carbon Mass Fraction (E10)                                    | --            |
| Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0) | 0.83                                | Weight Fraction CO2                                                | --            |
| Fuel Batch ID                                                      | 26757                               | Fuel Calibration Number                                            | 1             |
| Test Fuel Type                                                     | 46 - CARB LEV3 E10 Regular Gasoline | Fuel Batch Calibration Date                                        | 07/27/2017    |
| Fuel Batch Calibration Effective Date                              | 07/27/2017                          | Fuel Batch Calibration Ineffective Date                            | 07/27/2032    |
| Carbon Weight Fraction NMHC                                        | --                                  | Carbon Weight Fraction HC                                          | --            |
| Exhaust Carbon Weight Fraction                                     | --                                  | Fuel Methanol Volume Fraction                                      | --            |
| Fuel Density (grams/cubic ft)                                      | --                                  | Fuel Specific Gravity                                              | 0.749         |
| Fuel Ethanol Volume Percent (%)                                    | 9.8                                 | Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb) | 17958         |
| Fuel Net Heat of Combustion (E10) (MJ/kg)                          | --                                  | Fuel Carbon Mass Fraction (E10)                                    | --            |
| Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0) | 0.827                               | Weight Fraction CO2                                                | --            |

## Certification Summary Information Report

| Test Group                     |               | VHYXV01.6SB7                        |     |             | Evaporative/Refueling Family    |                                   |         | VHYXR0120SBG                            |        |
|--------------------------------|---------------|-------------------------------------|-----|-------------|---------------------------------|-----------------------------------|---------|-----------------------------------------|--------|
| Consolidated List of Standards |               |                                     |     |             |                                 |                                   |         |                                         |        |
| Exhaust Standards              |               |                                     |     |             |                                 |                                   |         |                                         |        |
| Cert Region                    |               | California + CAA Section 177 states |     |             | Cert/In-Use Code                |                                   |         | Cert                                    |        |
| Vehicle Class                  |               | LDV/Passenger Car                   |     |             | Standard Level                  |                                   |         | California LEV-IV ULEV70                |        |
| Fuel                           |               | Gasoline                            |     |             | Test Procedure                  |                                   |         | 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            | --                                  | --  | --          | --                              | --                                | --      | 0.04                                    | 9.6    |
| 150,000 miles                  | NMOG          | --                                  | --  | 1.03        | --                              | --                                | --      | 0.0075                                  | 99.999 |
| 150,000 miles                  | NMOG+NOX      | --                                  | --  | --          | --                              | --                                | 1       | --                                      | 0.084  |
| 150,000 miles                  | NOX           | --                                  | --  | --          | --                              | --                                | --      | 0.0035                                  | 99.999 |
| 150,000 miles                  | PM            | --                                  | --  | --          | --                              | --                                | --      | 0.0002                                  | 0.006  |
|                                |               |                                     |     |             |                                 |                                   |         |                                         |        |
| Cert Region                    |               | Federal                             |     |             | Cert/In-Use Code                |                                   |         | Cert                                    |        |
| Vehicle Class                  |               | LDV/Passenger Car                   |     |             | Standard Level                  |                                   |         | Federal Tier 3 Bin 70                   |        |
| Fuel                           |               | Gasoline                            |     |             | Test Procedure                  |                                   |         | Federal fuel 2-day exhaust (w/can load) |        |
| Useful Life                    | Emission Name | Rounded Result                      | RAF | NMOG / NMHC | Upward Diesel Adjustment Factor | Downward Diesel Adjustment Factor | Mult DF | Add DF                                  | Std    |
| 120,000 miles                  | CREE          | --                                  | --  | --          | --                              | --                                | --      | 0                                       | 999    |
| 120,000 miles                  | METHANE       | --                                  | --  | --          | --                              | --                                | --      | 0.0000                                  | 0.030  |
| 120,000 miles                  | N2O           | --                                  | --  | --          | --                              | --                                | --      | 0.0013                                  | 0.010  |
| 150,000 miles                  | CO            | --                                  | --  | --          | --                              | --                                | --      | 0.04                                    | 1.7    |
| 150,000 miles                  | CO-COMP       | --                                  | --  | --          | --                              | --                                | --      | --                                      | 4.2    |
| 150,000 miles                  | HCHO          | --                                  | --  | --          | --                              | --                                | --      | --                                      | 0.004  |
| 150,000 miles                  | NMOG          | --                                  | --  | 1.10        | --                              | --                                | --      | 0.0075                                  | 99.999 |
| 150,000 miles                  | NMOG+NOX      | --                                  | --  | --          | --                              | --                                | --      | 0                                       | 0.070  |
| 150,000 miles                  | NMOG+NOX-COMP | --                                  | --  | --          | --                              | --                                | --      | --                                      | 0.070  |
| 150,000 miles                  | NOX           | --                                  | --  | --          | --                              | --                                | --      | 0.0035                                  | 99.999 |
| 150,000 miles                  | PM            | --                                  | --  | --          | --                              | --                                | --      | 0.0002                                  | 0.003  |
|                                |               |                                     |     |             |                                 |                                   |         |                                         |        |

## Certification Summary Information Report

|                      |                      |                       |            |                    |                                        |                                          |                |                       |            |
|----------------------|----------------------|-----------------------|------------|--------------------|----------------------------------------|------------------------------------------|----------------|-----------------------|------------|
| <b>Test Group</b>    | VHYXV01.6SB7         |                       |            |                    | Evaporative/Refueling Family           |                                          |                | VHYXR0120SBG          |            |
| <b>Cert Region</b>   | Federal              |                       |            |                    | <b>Cert/In-Use Code</b>                |                                          |                | Cert                  |            |
| <b>Vehicle Class</b> | LDV/Passenger Car    |                       |            |                    | <b>Standard Level</b>                  |                                          |                | Federal Tier 3 Bin 70 |            |
| <b>Fuel</b>          | Gasoline             |                       |            |                    | <b>Test Procedure</b>                  |                                          |                | US06                  |            |
| <b>Useful Life</b>   | <b>Emission Name</b> | <b>Rounded Result</b> | <b>RAF</b> | <b>NMOG / NMHC</b> | <b>Upward Diesel Adjustment Factor</b> | <b>Downward Diesel Adjustment Factor</b> | <b>Mult DF</b> | <b>Add DF</b>         | <b>Std</b> |
| 150,000 miles        | CO                   | --                    | --         | --                 | --                                     | --                                       | --             | 0.04                  | 99.999     |
| 150,000 miles        | NMOG                 | --                    | --         | 1.03               | --                                     | --                                       | --             | 0.0075                | 99.999     |
| 150,000 miles        | NOX                  | --                    | --         | --                 | --                                     | --                                       | --             | 0.0035                | 99.999     |
| 150,000 miles        | PM                   | --                    | --         | --                 | --                                     | --                                       | --             | 0.0002                | 0.006      |

|                      |                                     |                       |            |                    |                                        |                                          |                |                                         |            |
|----------------------|-------------------------------------|-----------------------|------------|--------------------|----------------------------------------|------------------------------------------|----------------|-----------------------------------------|------------|
| <b>Cert Region</b>   | California + CAA Section 177 states |                       |            |                    | <b>Cert/In-Use Code</b>                |                                          |                | Cert                                    |            |
| <b>Vehicle Class</b> | LDV/Passenger Car                   |                       |            |                    | <b>Standard Level</b>                  |                                          |                | California LEV-IV ULEV70                |            |
| <b>Fuel</b>          | Gasoline                            |                       |            |                    | <b>Test Procedure</b>                  |                                          |                | Federal fuel 2-day exhaust (w/can load) |            |
| <b>Useful Life</b>   | <b>Emission Name</b>                | <b>Rounded Result</b> | <b>RAF</b> | <b>NMOG / NMHC</b> | <b>Upward Diesel Adjustment Factor</b> | <b>Downward Diesel Adjustment Factor</b> | <b>Mult DF</b> | <b>Add DF</b>                           | <b>Std</b> |
| 150,000 miles        | CO                                  | --                    | --         | --                 | --                                     | --                                       | --             | 0.04                                    | 1.7        |
| 150,000 miles        | HCHO                                | --                    | --         | --                 | --                                     | --                                       | --             | --                                      | 0.004      |
| 150,000 miles        | NMOG                                | --                    | --         | 1.10               | --                                     | --                                       | --             | 0.0075                                  | 99.999     |
| 150,000 miles        | NMOG+NOX                            | --                    | --         | 1.10               | --                                     | --                                       | --             | 0                                       | 0.070      |
| 150,000 miles        | NOX                                 | --                    | --         | --                 | --                                     | --                                       | --             | 0.0035                                  | 99.999     |
| 150,000 miles        | PM                                  | --                    | --         | --                 | --                                     | --                                       | --             | 0.0002                                  | 0.003      |

|                      |                      |                       |            |                    |                                        |                                          |                |                       |            |
|----------------------|----------------------|-----------------------|------------|--------------------|----------------------------------------|------------------------------------------|----------------|-----------------------|------------|
| <b>Cert Region</b>   | Federal              |                       |            |                    | <b>Cert/In-Use Code</b>                |                                          |                | Cert                  |            |
| <b>Vehicle Class</b> | LDV/Passenger Car    |                       |            |                    | <b>Standard Level</b>                  |                                          |                | Federal Tier 3 Bin 70 |            |
| <b>Fuel</b>          | Gasoline             |                       |            |                    | <b>Test Procedure</b>                  |                                          |                | SC03                  |            |
| <b>Useful Life</b>   | <b>Emission Name</b> | <b>Rounded Result</b> | <b>RAF</b> | <b>NMOG / NMHC</b> | <b>Upward Diesel Adjustment Factor</b> | <b>Downward Diesel Adjustment Factor</b> | <b>Mult DF</b> | <b>Add DF</b>         | <b>Std</b> |
| 150,000 miles        | CO                   | --                    | --         | --                 | --                                     | --                                       | --             | 0.04                  | 99.999     |
| 150,000 miles        | NMOG                 | --                    | --         | 1.03               | --                                     | --                                       | --             | 0.0075                | 99.999     |
| 150,000 miles        | NOX                  | --                    | --         | --                 | --                                     | --                                       | --             | 0.0035                | 99.999     |



## Certification Summary Information Report

|                      |                      |                       |            |                    |                                        |                                          |                |                       |            |
|----------------------|----------------------|-----------------------|------------|--------------------|----------------------------------------|------------------------------------------|----------------|-----------------------|------------|
| <b>Test Group</b>    |                      | VHYXV01.6SB7          |            |                    | <b>Evaporative/Refueling Family</b>    |                                          |                | VHYXR0120SBG          |            |
| <b>Cert Region</b>   |                      | Federal               |            |                    | <b>Cert/In-Use Code</b>                |                                          |                | Cert                  |            |
| <b>Vehicle Class</b> |                      | LDV/Passenger Car     |            |                    | <b>Standard Level</b>                  |                                          |                | Federal Tier 3 Bin 70 |            |
| <b>Fuel</b>          |                      | Gasoline              |            |                    | <b>Test Procedure</b>                  |                                          |                | HWFE                  |            |
| <b>Useful Life</b>   | <b>Emission Name</b> | <b>Rounded Result</b> | <b>RAF</b> | <b>NMOG / NMHC</b> | <b>Upward Diesel Adjustment Factor</b> | <b>Downward Diesel Adjustment Factor</b> | <b>Mult DF</b> | <b>Add DF</b>         | <b>Std</b> |
| 120,000 miles        | CREE                 | --                    | --         | --                 | --                                     | --                                       | --             | 0                     | 999        |
| 150,000 miles        | NMOG                 | --                    | --         | 1.03               | --                                     | --                                       | --             | 0.0075                | 99.999     |
| 150,000 miles        | NMOG+NOX             | --                    | --         | 1.03               | --                                     | --                                       | --             | 0                     | 0.070      |
| 150,000 miles        | NOX                  | --                    | --         | --                 | --                                     | --                                       | --             | 0.0035                | 99.999     |

|                      |                      |                                     |            |                    |                                        |                                          |                |                          |            |
|----------------------|----------------------|-------------------------------------|------------|--------------------|----------------------------------------|------------------------------------------|----------------|--------------------------|------------|
| <b>Cert Region</b>   |                      | California + CAA Section 177 states |            |                    | <b>Cert/In-Use Code</b>                |                                          |                | Cert                     |            |
| <b>Vehicle Class</b> |                      | LDV/Passenger Car                   |            |                    | <b>Standard Level</b>                  |                                          |                | California LEV-IV ULEV70 |            |
| <b>Fuel</b>          |                      | Gasoline                            |            |                    | <b>Test Procedure</b>                  |                                          |                | Cold CO                  |            |
| <b>Useful Life</b>   | <b>Emission Name</b> | <b>Rounded Result</b>               | <b>RAF</b> | <b>NMOG / NMHC</b> | <b>Upward Diesel Adjustment Factor</b> | <b>Downward Diesel Adjustment Factor</b> | <b>Mult DF</b> | <b>Add DF</b>            | <b>Std</b> |
| 50,000 miles         | CO                   | --                                  | --         | --                 | --                                     | --                                       | --             | 0.01                     | 10.0       |

|                      |                      |                                     |            |                    |                                        |                                          |                |                          |            |
|----------------------|----------------------|-------------------------------------|------------|--------------------|----------------------------------------|------------------------------------------|----------------|--------------------------|------------|
| <b>Cert Region</b>   |                      | California + CAA Section 177 states |            |                    | <b>Cert/In-Use Code</b>                |                                          |                | Cert                     |            |
| <b>Vehicle Class</b> |                      | LDV/Passenger Car                   |            |                    | <b>Standard Level</b>                  |                                          |                | California LEV-IV ULEV70 |            |
| <b>Fuel</b>          |                      | Gasoline                            |            |                    | <b>Test Procedure</b>                  |                                          |                | SC03                     |            |
| <b>Useful Life</b>   | <b>Emission Name</b> | <b>Rounded Result</b>               | <b>RAF</b> | <b>NMOG / NMHC</b> | <b>Upward Diesel Adjustment Factor</b> | <b>Downward Diesel Adjustment Factor</b> | <b>Mult DF</b> | <b>Add DF</b>            | <b>Std</b> |
| 150,000 miles        | CO                   | --                                  | --         | --                 | --                                     | --                                       | --             | 0.04                     | 1.7        |
| 150,000 miles        | NMOG                 | --                                  | --         | 1.03               | --                                     | --                                       | --             | 0.0075                   | 99.999     |
| 150,000 miles        | NMOG+NOX             | --                                  | --         | --                 | --                                     | --                                       | 1              | --                       | 0.070      |
| 150,000 miles        | NOX                  | --                                  | --         | --                 | --                                     | --                                       | --             | 0.0035                   | 99.999     |

## Certification Summary Information Report

|                                        |                      |                                     |            |                    |                                        |                                          |                |                          |            |
|----------------------------------------|----------------------|-------------------------------------|------------|--------------------|----------------------------------------|------------------------------------------|----------------|--------------------------|------------|
| <b>Test Group</b>                      |                      | VHYXV01.6SB7                        |            |                    | <b>Evaporative/Refueling Family</b>    |                                          |                | VHYXR0120SBG             |            |
| <b>Cert Region</b>                     |                      | California + CAA Section 177 states |            |                    | <b>Cert/In-Use Code</b>                |                                          |                | Cert                     |            |
| <b>Vehicle Class</b>                   |                      | LDV/Passenger Car                   |            |                    | <b>Standard Level</b>                  |                                          |                | California LEV-IV ULEV70 |            |
| <b>Fuel</b>                            |                      | Gasoline                            |            |                    | <b>Test Procedure</b>                  |                                          |                | Fed. fuel 50 F exh.      |            |
| <b>Useful Life</b>                     | <b>Emission Name</b> | <b>Rounded Result</b>               | <b>RAF</b> | <b>NMOG / NMHC</b> | <b>Upward Diesel Adjustment Factor</b> | <b>Downward Diesel Adjustment Factor</b> | <b>Mult DF</b> | <b>Add DF</b>            | <b>Std</b> |
| 4,000 miles                            | CO                   | --                                  | --         | --                 | --                                     | --                                       | --             | 0                        | 1.7        |
| 4,000 miles                            | HCHO                 | --                                  | --         | --                 | --                                     | --                                       | --             | --                       | 0.016      |
| 4,000 miles                            | NMOG                 | --                                  | --         | 1.10               | --                                     | --                                       | --             | 0                        | 99.999     |
| 4,000 miles                            | NMOG+NOX             | --                                  | --         | 1.10               | --                                     | --                                       | --             | 0                        | 0.140      |
| 4,000 miles                            | NOX                  | --                                  | --         | --                 | --                                     | --                                       | --             | 0                        | 99.999     |
|                                        |                      |                                     |            |                    |                                        |                                          |                |                          |            |
| <b>Cert Region</b>                     |                      | California + CAA Section 177 states |            |                    | <b>Cert/In-Use Code</b>                |                                          |                | Cert                     |            |
| <b>Vehicle Class</b>                   |                      | LDV/Passenger Car                   |            |                    | <b>Standard Level</b>                  |                                          |                | California LEV-IV ULEV70 |            |
| <b>Fuel</b>                            |                      | Gasoline                            |            |                    | <b>Test Procedure</b>                  |                                          |                | HWFE                     |            |
| <b>Useful Life</b>                     | <b>Emission Name</b> | <b>Rounded Result</b>               | <b>RAF</b> | <b>NMOG / NMHC</b> | <b>Upward Diesel Adjustment Factor</b> | <b>Downward Diesel Adjustment Factor</b> | <b>Mult DF</b> | <b>Add DF</b>            | <b>Std</b> |
| 150,000 miles                          | NMOG                 | --                                  | --         | 1.03               | --                                     | --                                       | --             | 0.0075                   | 99.999     |
| 150,000 miles                          | NMOG+NOX             | --                                  | --         | 1.03               | --                                     | --                                       | --             | 0                        | 0.070      |
| 150,000 miles                          | NOX                  | --                                  | --         | --                 | --                                     | --                                       | --             | 0.0035                   | 99.999     |
|                                        |                      |                                     |            |                    |                                        |                                          |                |                          |            |
| <b>Cert Region</b>                     |                      | Federal                             |            |                    | <b>Cert/In-Use Code</b>                |                                          |                | Cert                     |            |
| <b>Vehicle Class</b>                   |                      | LDV/Passenger Car                   |            |                    | <b>Standard Level</b>                  |                                          |                | Federal Tier 3 Bin 70    |            |
| <b>Fuel</b>                            |                      | Gasoline                            |            |                    | <b>Test Procedure</b>                  |                                          |                | Cold CO                  |            |
| <b>Useful Life</b>                     | <b>Emission Name</b> | <b>Rounded Result</b>               | <b>RAF</b> | <b>NMOG / NMHC</b> | <b>Upward Diesel Adjustment Factor</b> | <b>Downward Diesel Adjustment Factor</b> | <b>Mult DF</b> | <b>Add DF</b>            | <b>Std</b> |
| 50,000 miles                           | CO                   | --                                  | --         | --                 | --                                     | --                                       | --             | 0.01                     | 10.0       |
| 120,000 miles                          | HC-NM                | --                                  | --         | --                 | --                                     | --                                       | --             | 0.0054                   | 0.3        |
| <b>Evaporative/Refueling Standards</b> |                      |                                     |            |                    |                                        |                                          |                |                          |            |

## Certification Summary Information Report

|                              |               |                                 |                |                              |        |                                        |  |
|------------------------------|---------------|---------------------------------|----------------|------------------------------|--------|----------------------------------------|--|
| Test Group                   |               | VHYXV01.6SB7                    |                | Evaporative/Refueling Family |        | VHYXR0120SBG                           |  |
| Evaporative/Refueling Family |               | VHYXR0120SBG                    |                | Cert Region                  |        | California + CAA Section 177 states    |  |
| Cert/In-Use Code             |               | Cert                            |                | Standard Level               |        | California LEV-IV Zero Evap (Option 2) |  |
| Test Procedure               |               | Evap Canister Bleed Test        |                |                              |        |                                        |  |
| Fuel                         | Useful Life   | Emission Name                   | Rounded Result | Std                          | Add DF |                                        |  |
| Gasoline                     | 150,000 miles | HC-TOTAL                        | --             | 0.020                        | 0      |                                        |  |
|                              |               |                                 |                |                              |        |                                        |  |
| Evaporative/Refueling Family |               | VHYXR0120SBG                    |                | Cert Region                  |        | Federal                                |  |
| Cert/In-Use Code             |               | Cert                            |                | Standard Level               |        | Federal Tier 3 Evap                    |  |
| Test Procedure               |               | Leak Test - Port Near Canister  |                |                              |        |                                        |  |
| Fuel                         | Useful Life   | Emission Name                   | Rounded Result | Std                          | Add DF |                                        |  |
| Gasoline                     | 150,000 miles | LEAK-DIA                        | --             | 0.020                        | 0      |                                        |  |
|                              |               |                                 |                |                              |        |                                        |  |
| Evaporative/Refueling Family |               | VHYXR0120SBG                    |                | Cert Region                  |        | Federal                                |  |
| Cert/In-Use Code             |               | Cert                            |                | Standard Level               |        | Federal Tier 3 Evap                    |  |
| Test Procedure               |               | California fuel 2-day evap      |                |                              |        |                                        |  |
| Fuel                         | Useful Life   | Emission Name                   | Rounded Result | Std                          | Add DF |                                        |  |
| Gasoline                     | 150,000 miles | HC-TOTAL-EQUIV                  | --             | 0.300                        | 0      |                                        |  |
|                              |               |                                 |                |                              |        |                                        |  |
| Evaporative/Refueling Family |               | VHYXR0120SBG                    |                | Cert Region                  |        | California + CAA Section 177 states    |  |
| Cert/In-Use Code             |               | Cert                            |                | Standard Level               |        | California LEV-IV Zero Evap (Option 2) |  |
| Test Procedure               |               | CA fuel 3-day evap.             |                |                              |        |                                        |  |
| Fuel                         | Useful Life   | Emission Name                   | Rounded Result | Std                          | Add DF |                                        |  |
| Gasoline                     | 150,000 miles | HC-TOTAL-EQUIV                  | --             | 0.300                        | 0      |                                        |  |
|                              |               |                                 |                |                              |        |                                        |  |
| Evaporative/Refueling Family |               | VHYXR0120SBG                    |                | 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      |                                        |  |
|                              |               |                                 |                |                              |        |                                        |  |

## Certification Summary Information Report

|                              |               |                                 |                |                              |        |                                        |  |
|------------------------------|---------------|---------------------------------|----------------|------------------------------|--------|----------------------------------------|--|
| Test Group                   |               | VHYXV01.6SB7                    |                | Evaporative/Refueling Family |        | VHYXR0120SBG                           |  |
| Evaporative/Refueling Family |               | VHYXR0120SBG                    |                | Cert Region                  |        | California + CAA Section 177 states    |  |
| Cert/In-Use Code             |               | Cert                            |                | Standard Level               |        | California LEV-IV Zero Evap (Option 2) |  |
| Test Procedure               |               | Leak Test - Port Near Fuel Pipe |                |                              |        |                                        |  |
| Fuel                         | Useful Life   | Emission Name                   | Rounded Result | Std                          | Add DF |                                        |  |
| Gasoline                     | 150,000 miles | LEAK-DIA                        | --             | 0.02                         | 0      |                                        |  |
|                              |               |                                 |                |                              |        |                                        |  |
| Evaporative/Refueling Family |               | VHYXR0120SBG                    |                | 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      |                                        |  |
|                              |               |                                 |                |                              |        |                                        |  |
| Evaporative/Refueling Family |               | VHYXR0120SBG                    |                | Cert Region                  |        | Federal                                |  |
| Cert/In-Use Code             |               | Cert                            |                | Standard Level               |        | Federal Tier 3 Evap                    |  |
| Test Procedure               |               | Evap Canister Bleed Test        |                |                              |        |                                        |  |
| Fuel                         | Useful Life   | Emission Name                   | Rounded Result | Std                          | Add DF |                                        |  |
| Gasoline                     | 150,000 miles | HC-TOTAL                        | --             | 0.020                        | 0      |                                        |  |
|                              |               |                                 |                |                              |        |                                        |  |
| Evaporative/Refueling Family |               | VHYXR0120SBG                    |                | Cert Region                  |        | Federal                                |  |
| Cert/In-Use Code             |               | Cert                            |                | Standard Level               |        | Federal Tier 3 Evap                    |  |
| Test Procedure               |               | CA fuel 3-day evap.             |                |                              |        |                                        |  |
| Fuel                         | Useful Life   | Emission Name                   | Rounded Result | Std                          | Add DF |                                        |  |
| Gasoline                     | 150,000 miles | HC-TOTAL-EQUIV                  | --             | 0.300                        | 0      |                                        |  |
|                              |               |                                 |                |                              |        |                                        |  |
| Evaporative/Refueling Family |               | VHYXR0120SBG                    |                | 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      |                                        |  |
|                              |               |                                 |                |                              |        |                                        |  |

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|                              |               |                                    |                |                              |        |                                        |  |
|------------------------------|---------------|------------------------------------|----------------|------------------------------|--------|----------------------------------------|--|
| Test Group                   |               | VHYXV01.6SB7                       |                | Evaporative/Refueling Family |        | VHYXR0120SBG                           |  |
| Evaporative/Refueling Family |               | VHYXR0120SBG                       |                | Cert Region                  |        | Federal                                |  |
| Cert/In-Use Code             |               | Cert                               |                | Standard Level               |        | Federal Tier 3 Evap                    |  |
| Test Procedure               |               | California Fuel Running Loss       |                |                              |        |                                        |  |
| Fuel                         | Useful Life   | Emission Name                      | Rounded Result | Std                          | Add DF |                                        |  |
| Gasoline                     | 150,000 miles | HC-TOTAL-EQUIV                     | --             | 0.05                         | 0      |                                        |  |
|                              |               |                                    |                |                              |        |                                        |  |
| Evaporative/Refueling Family |               | VHYXR0120SBG                       |                | Cert Region                  |        | California + CAA Section 177 states    |  |
| Cert/In-Use Code             |               | Cert                               |                | Standard Level               |        | California LEV-IV Zero Evap (Option 2) |  |
| Test Procedure               |               | California Fuel Running Loss       |                |                              |        |                                        |  |
| Fuel                         | Useful Life   | Emission Name                      | Rounded Result | Std                          | Add DF |                                        |  |
| Gasoline                     | 150,000 miles | HC-TOTAL-EQUIV                     | --             | 0.05                         | 0      |                                        |  |
|                              |               |                                    |                |                              |        |                                        |  |
| Evaporative/Refueling Family |               | VHYXR0120SBG                       |                | 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                         | 0.002  |                                        |  |
|                              |               |                                    |                |                              |        |                                        |  |
| Evaporative/Refueling Family |               | VHYXR0120SBG                       |                | 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                         | 0.002  |                                        |  |

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| Test Group     |                                                                 | VHYXV01.6SB7 | Evaporative/Refueling Family |                                                    | VHYXR0120SBG |
|----------------|-----------------------------------------------------------------|--------------|------------------------------|----------------------------------------------------|--------------|
| Glossary       |                                                                 |              |                              |                                                    |              |
| Useful Life    |                                                                 |              |                              |                                                    |              |
| 4              | 4,000 miles                                                     |              | 120                          | 120,000 miles                                      |              |
| 50             | 50,000 miles                                                    |              | 150                          | 150,000 miles                                      |              |
| 100            | 100,000 miles                                                   |              |                              |                                                    |              |
| Emission Name  |                                                                 |              |                              |                                                    |              |
| HC-TOTAL       | Total Hydrocarbon                                               |              | COMB-CREE                    | Combined Carbon-Related Exhaust Emissions          |              |
| CO             | Carbon Monoxide                                                 |              | COMB-OPT-CREE                | Combined Optional Carbon-Related Exhaust Emissions |              |
| CO2            | Carbon dioxide                                                  |              | HC-TOTAL-EQUIV               | Total Hydrocarbon equivalent - Evap only           |              |
| CREE           | Carbon-Related Exhaust Emissions                                |              | METHANE-COMB                 | Combined CH4 for HD 2b/3 vehicles only             |              |
| OPT-CREE       | Optional Carbon-Related Exhaust Emissions                       |              | N2O-COMB                     | Combined Nitrous Oxide for HD 2b/3 vehicles only   |              |
| NOX            | Nitrogen Oxide                                                  |              | LEAK-DIA                     | Effective Leak Diameter (inches)                   |              |
| PM             | Particulate Matter                                              |              | LEAK-GAS CAP                 | Gas Cap Leakage (cc/min)                           |              |
| PM-COMP        | SFTP Composite Particulate Matter                               |              | CO2-COMB                     | Combined Carbon Dioxide for HD 2b/3 Vehicles Only  |              |
| HC-NM          | Non-methane Hydrocarbon                                         |              | KW-HRS                       | Integrated DC KW-HRS                               |              |
| OMHCE          | Organic material Hydrocarbon Equivalent                         |              | CH4 BAG 1                    | Bag 1 Methane                                      |              |
| OMNMHCE        | Organic material non-methane HC equivalent                      |              | CH4 BAG 2                    | Bag 2 Methane                                      |              |
| NMOG           | Non-methane organic gases                                       |              | CH4 BAG 3                    | Bag 3 Methane                                      |              |
| HCHO           | Formaldehyde                                                    |              | CH4 BAG 4                    | Bag 4 Methane                                      |              |
| H3C2HO         | Acetaldehyde                                                    |              | CO BAG 1                     | Bag 1 Carbon Monoxide                              |              |
| HC-NM+NOX      | SFTP Non-methane Hydrocarbon + Nitrogen Oxides for US06 or SC03 |              | CO BAG 2                     | Bag 2 Carbon Monoxide                              |              |
| HC-NM+NOX-COMP | SFTP Composite Non-methane Hydrocarbon + Nitrogen Oxides        |              | CO BAG 3                     | Bag 3 Carbon Monoxide                              |              |
| CO-COMP        | SFTP Composite Carbon Monoxide                                  |              | CO BAG 4                     | Bag 4 Carbon Monoxide                              |              |
| ETHANOL        | C2H5OH - Ethanol                                                |              | NMOG BAG 1                   | Bag 1 Non-methane organic gases                    |              |
| FE BAG 1       | Bag 1 Fuel Economy                                              |              | NMOG BAG 2                   | Bag 2 Non-methane organic gases                    |              |
| FE BAG 2       | Bag 2 Fuel Economy                                              |              | NMOG BAG 3                   | Bag 3 Non-methane organic gases                    |              |
| FE BAG 3       | Bag 3 Fuel Economy                                              |              | NMOG BAG 4                   | Bag 4 Non-methane organic gases                    |              |
| FE BAG 4       | Bag 4 Fuel Economy                                              |              | ACT-DISTANCE BAG 1           | Bag 1 Actual Distance                              |              |
| MFR FE         | Manufacturer Fuel Economy                                       |              | ACT-DISTANCE BAG 2           | Bag 2 Actual Distance                              |              |
| HC             | Hydrocarbon for Running Loss and ORVR                           |              | ACT-DISTANCE BAG 3           | Bag 3 Actual Distance                              |              |
| METHANE        | CH4 - Methane                                                   |              | ACT-DISTANCE BAG 4           | Bag 4 Actual Distance                              |              |
| METHANOL       | CH3OH - Methanol                                                |              | HC-TOTAL BAG 1               | Bag 1 Total Hydrocarbon                            |              |
| N2O            | Nitrous Oxide                                                   |              | HC-TOTAL BAG 2               | Bag 2 Total Hydrocarbon                            |              |
| SPITBACK       | Spitback Hydrocarbon in grams                                   |              | HC-TOTAL BAG 3               | Bag 3 Total Hydrocarbon                            |              |
| AMP-HRS        | Integrated Amp-hours                                            |              | HC-TOTAL BAG 4               | Bag 4 Total Hydrocarbon                            |              |
| START-SOC      | System Start State of Charge Watt-hours                         |              | WATT-HRS BAG 1               | Bag 1 Watt Hours                                   |              |
| END-SOC        | System End State of Charge Watt-hours                           |              | WATT-HRS BAG 2               | Bag 2 Watt Hours                                   |              |

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| Test Group                             |                                                            | VHXYV01.6SB7 | Evaporative/Refueling Family |                                                 | VHXYR0120SBG |
|----------------------------------------|------------------------------------------------------------|--------------|------------------------------|-------------------------------------------------|--------------|
| 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                             |              |
| <b>Certification Region</b>            |                                                            |              |                              |                                                 |              |
| CA                                     | California + CAA Section 177 states                        |              | FA                           | Federal                                         |              |
| <b>Exhaust Emission Standard Level</b> |                                                            |              |                              |                                                 |              |
| 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                    |                                                                   | VHYYXV01.6SB7 | Evaporative/Refueling Family                             | VHYYXR0120SBG              |
|-------------------------------|-------------------------------------------------------------------|---------------|----------------------------------------------------------|----------------------------|
| 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                   |               |                                                          |                            |
| <b>Transmission Type Code</b> |                                                                   |               |                                                          |                            |
| 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) |                            |
| <b>Drive System Code</b>      |                                                                   |               |                                                          |                            |
| 4                             | 4-Wheel Drive                                                     | P             | Part-time 4-Wheel Drive                                  |                            |



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| Test Group                    |                                 | VHYYXV01.6SB7 | Evaporative/Refueling Family |                                  | VHYYXR0120SBG |
|-------------------------------|---------------------------------|---------------|------------------------------|----------------------------------|---------------|
| 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                     |               |