

## Certification Summary Information Report

|                                   |                  |                                     |                        |
|-----------------------------------|------------------|-------------------------------------|------------------------|
| <b>Manufacturer</b>               | Kia Corporation  | <b>Manufacturer Code</b>            | KMX                    |
| <b>Test Group</b>                 | VKMXT02.5YP3     | <b>Evaporative/Refueling Family</b> | VKMXR0144JPG           |
| <b>Certificate Number</b>         | VKMXT02.5YP3-026 | <b>CARB Executive Order #</b>       | --                     |
| <b>Certificate Issue Date</b>     | 06/18/2026       | <b>Certificate Revision Date</b>    | --                     |
| <b>Certificate Effective Date</b> | 06/18/2026       | <b>Conditional Certificate</b>      | No                     |
| <b>CSI Revision #</b>             | --               | <b>CSI Submission/Revision Date</b> | 05/07/2026 03:21:08 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 | Spark Ignition direct & ported 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>                                   | LDT2         |
| <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>                        | VKMXGPGNNYP3                                                                                                                                                                                                      | <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>              | 09/01/2026                                                                                                                                                                                                        | <b>CAP2000 Conditional Certificate?</b>                    | No           |
| <b>Independent Commercial Importer?</b>             | No                                                                                                                                                                                                                | <b>Alternative Fuel Converter Certificate?</b>             | No           |
| <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>                | VHYXV02.5UP3 |
| <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>                      | The fuel for Litmus test is E10. Litmus result(Value/Threshold): City(19.6/18.9),HWY(25.7/25.3)-2MODE. Test No: RKMXX10081467(FTP),RKMXX10081468(HWY),RKMXX10081469(US06),RKMXX10081470(SC03),RKMXX10081471(Cold) |                                                            |              |
| <b>Mfr Exhaust / Evap Standards Comments</b>        | --                                                                                                                                                                                                                |                                                            |              |

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|-----------------------------------------------------------------------------|--------------------------------------------------|-----------------------------------------------------------|--------------------------------|
| <b>Test Group</b>                                                           | VKMXT02.5YP3                                     | <b>Evaporative/Refueling Family</b>                       | VKMXR0144JPG                   |
| <b>Evaporative/Refueling Family Information</b>                             |                                                  |                                                           |                                |
| <b>Evaporative Summary Information Type</b>                                 | New                                              | <b>Submission/Correction Date</b>                         | 05/04/2026 01:20:52 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>                     | HDPE                           |
| <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> | 144                                              | <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> |
| VKMXR0144JPG-MQ4                                                            | 50 State                                         | 0.02                                                      | --                             |

## Models Covered by this Certificate

| Carline Manufacturer | Division | Carline           | Certification Region Code(s)        | Drive System         | Trans - Type                                                     | - # of Gears | Trans - Lockup |
|----------------------|----------|-------------------|-------------------------------------|----------------------|------------------------------------------------------------------|--------------|----------------|
| Kia Corporation      | 1 - KIA  | 829 - Sorento FWD | California + CAA Section 177 states | 2-Wheel Drive, Front | Automated Manual-Selectable (e.g. Automated Manual with paddles) | 8            | No             |
| Kia Corporation      | 1 - KIA  | 829 - Sorento FWD | Federal                             | 2-Wheel Drive, Front | Automated Manual-Selectable (e.g. Automated Manual with paddles) | 8            | No             |
| Kia Corporation      | 1 - KIA  | 828 - Sorento AWD | Federal                             | All Wheel Drive      | Automated Manual-Selectable (e.g. Automated Manual with paddles) | 8            | No             |
| Kia Corporation      | 1 - KIA  | 828 - Sorento AWD | California + CAA Section 177 states | All Wheel Drive      | Automated Manual-Selectable (e.g. Automated Manual with paddles) | 8            | No             |

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|--------------------------------------------------|-------------------------|----------------------------------------------------------|---------------------------|-------------------------------|
| <b>Test Group</b>                                | VKMXT02.5YP3            | <b>Evaporative/Refueling Family</b>                      | VKMXR0144JPG              |                               |
| <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 0W30                  |                               |
| <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      | Platinum + Palladium + 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>              | 2.5                     | <b>Engine Rated Horsepower</b>                           | 281                       |                               |
| <b>Number of Inlet Valves Per Cylinder</b>       | 2                       | <b>Number of Exhaust Valves Per Cylinder</b>             | 2                         |                               |
| <b>Air Aspiration Method</b>                     | Turbocharged            | <b>Number of Air Aspiration Devices</b>                  | 1                         |                               |
| <b>Air Aspiration Device Configuration</b>       | Single                  | <b>Charge Air Cooler Type</b>                            | Air                       |                               |
| <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>  | Fixed3                  |                                                          |                           |                               |
| <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>                  | Other                   | <b>Air/Fuel Sensor # 1 Description</b>                   | WR-H2OS                   |                               |
| <b>Air/Fuel Sensor # 2 Type</b>                  | Heated oxygen           | <b>Air/Fuel Sensor # 2 Description</b>                   | --                        |                               |
| <b>Mfr Air/Fuel Sensor Comments</b>              | --                      |                                                          |                           |                               |
| <b>Exhaust Gas Recirculation</b>                 | No                      | <b>Cooled Exhaust Gas Recirculation</b>                  | No                        |                               |
| <b>EGR Type</b>                                  | --                      | <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>         | --                      |                                                          |                           |                               |

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|                                    |  |              |              |              |              |                              |                       |                           |                          |                              |                       |
|------------------------------------|--|--------------|--------------|--------------|--------------|------------------------------|-----------------------|---------------------------|--------------------------|------------------------------|-----------------------|
| Test Group                         |  | VKMXT02.5YP3 |              |              |              | Evaporative/Refueling Family |                       |                           | VKMXR0144JPG             |                              |                       |
| 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                           |  | RKMX10081467 | RKMX10081469 | RKMX10081470 | RKMX10081471 | RKMX10081468                 | 23.4                  | 228.2                     | 33.5                     | 286.1                        | --                    |
| SFTP LEV-III Official Test Numbers |  |              |              |              |              |                              |                       |                           |                          |                              |                       |
| Test Group Fuel                    |  | FTP          |              | US06         |              | SC03                         |                       |                           |                          |                              |                       |
| Gasoline                           |  | RKMX10081467 |              | RKMX10081469 |              | RKMX10081470                 |                       |                           |                          |                              |                       |

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| <b>Test Group</b>                            | VKMXT02.5YP3                                                                                                                                                                  | <b>Evaporative/Refueling Family</b>                   | VKMXR0144JPG            |      |   |                   |          |  |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|-------------------------|------|---|-------------------|----------|--|
| <b>Emission Data Vehicle Information</b>     |                                                                                                                                                                               |                                                       |                         |      |   |                   |          |  |
| <b>Vehicle ID / Configuration</b>            | MQ4U1H5GA042A / 0                                                                                                                                                             | <b>Manufacturer Vehicle Configuration Number</b>      | 0                       |      |   |                   |          |  |
| <b>Original Test Group Name</b>              | MKMXT02.5JRG                                                                                                                                                                  | <b>Original Evaporative/Refueling Family</b>          | MKMXR0144JRG            |      |   |                   |          |  |
| <b>Original Test Vehicle Model Year</b>      | 2021                                                                                                                                                                          |                                                       |                         |      |   |                   |          |  |
| <b>Vehicle Model</b>                         |                                                                                                                                                                               |                                                       |                         |      |   |                   |          |  |
| <b>Represented Test Vehicle Make</b>         | Kia                                                                                                                                                                           | <b>Represented Test Vehicle Model</b>                 | Sorento                 |      |   |                   |          |  |
| <b>Leak Family Details</b>                   |                                                                                                                                                                               |                                                       |                         |      |   |                   |          |  |
| <b>Leak Family Identifier</b>                | MQ4                                                                                                                                                                           | <b>Leak Family Name</b>                               | MKMXR0144JRG-MQ4        |      |   |                   |          |  |
| <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                       |      |   |                   |          |  |
| <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>                           | G4KN-AC                                                                                                                                                                       | <b>Rated Horsepower</b>                               | 191                     |      |   |                   |          |  |
| <b>Displacement (liters)</b>                 | 2.5                                                                                                                                                                           |                                                       |                         |      |   |                   |          |  |
| <b>Air Aspiration Method</b>                 | Naturally Aspirated                                                                                                                                                           | <b>Air Aspiration Method, if 'Other'</b>              |                         |      |   |                   |          |  |
| <b>Number of Air Aspiration Devices</b>      | --                                                                                                                                                                            | <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>                     | 3935                                                                                                                                                                          | <b>Equivalent Test Weight (pounds)</b>                | 4250                    |      |   |                   |          |  |
| <b>GVWR (lbs)</b>                            | 5467                                                                                                                                                                          | <b>N/V Ratio</b>                                      | 31                      |      |   |                   |          |  |
| <b>Axle Ratio</b>                            | 4.08                                                                                                                                                                          |                                                       |                         |      |   |                   |          |  |
| <b>Transmission Type</b>                     | Semi-Automatic                                                                                                                                                                | <b># of Transmission Gears</b>                        | 8                       |      |   |                   |          |  |
| <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>                     | 28.002                                                                                                                                                                        | 0.5319                                                | 0.023241                |      |   |                   |          |  |
|                                              | 5.556                                                                                                                                                                         | 0.47281                                               | 0.022473                |      |   |                   |          |  |
|                                              | <b>EPA Calculated Total Road Load Horse Power for City/Highway/Evap Coefficients</b>                                                                                          |                                                       |                         |      |   |                   |          |  |
|                                              | 15                                                                                                                                                                            |                                                       |                         |      |   |                   |          |  |
| <b>Emission Control Device Comments</b>      | --                                                                                                                                                                            |                                                       |                         |      |   |                   |          |  |

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| <b>Test Group</b>                                                                                                                                                                                                                                                           | VKMXT02.5YP3                                 | <b>Evaporative/Refueling Family</b>                      | VKMXR0144JPG                        |                       |                       |                                                          |                                                           |                  |    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|----------------------------------------------------------|-------------------------------------|-----------------------|-----------------------|----------------------------------------------------------|-----------------------------------------------------------|------------------|----|
| <b>Manufacturer Test Vehicle Comments</b>                                                                                                                                                                                                                                   | MQ4A 2.5 AWD 8AT 18in EVAP-CORRECT CW & GVWR |                                                          |                                     |                       |                       |                                                          |                                                           |                  |    |
| <b>Test #</b>                                                                                                                                                                                                                                                               | <b>MKMX10065282</b>                          | <b>Test Procedure</b>                                    | <b>38 - CA fuel 3-day evap.</b>     |                       |                       |                                                          |                                                           |                  |    |
| <b>Exhaust Test # for this Evap Test</b>                                                                                                                                                                                                                                    | MKMX10065271                                 | <b>Test Fuel Type</b>                                    | 46 - CARB LEV3 E10 Regular Gasoline |                       |                       |                                                          |                                                           |                  |    |
| <b>Test Date</b>                                                                                                                                                                                                                                                            | 05/28/2020                                   | <b>Fuel</b>                                              | Gasoline                            |                       |                       |                                                          |                                                           |                  |    |
| <b>Fuel Batch ID</b>                                                                                                                                                                                                                                                        | 19E-03                                       | <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>                                                                                                                                                                                                                                          | 4130                                         | <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-EQUIV (Total Hydrocarbon equivalent - Evap only)</td> <td>0.2474</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) | 0.2474           | -- |
| Test Result Name                                                                                                                                                                                                                                                            | Unrounded Test Result                        | Verify Calculated FE Equivalent Value (miles per gallon) |                                     |                       |                       |                                                          |                                                           |                  |    |
| HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)                                                                                                                                                                                                                   | 0.2474                                       | --                                                       |                                     |                       |                       |                                                          |                                                           |                  |    |
| <b>Manufacturer Test Comments</b>                                                                                                                                                                                                                                           |                                              |                                                          |                                     |                       |                       |                                                          |                                                           |                  |    |
| 21MY MQ4a 2.5 18"(ETW:4250)-3DBL                                                                                                                                                                                                                                            |                                              |                                                          |                                     |                       |                       |                                                          |                                                           |                  |    |
| <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                      | 0.2474                | 0                     | 0.247                                                    | 0.4                                                       | Pass             |    |
| CA                                                                                                                                                                                                                                                                          | 150,000 miles                                | California LEV-IV Zero Evap (Option 2)                   | HC-TOTAL-EQUIV                      | 0.2474                | 0                     | 0.247                                                    | 0.4                                                       | Pass             |    |

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|                                                |                                            |                                       |                                        |
|------------------------------------------------|--------------------------------------------|---------------------------------------|----------------------------------------|
| <b>Test Group</b>                              | VKMXT02.5YP3                               | <b>Evaporative/Refueling Family</b>   | VKMXR0144JPG                           |
| <b>Test #</b>                                  | <b>MKMX10065284</b>                        | <b>Test Procedure</b>                 | <b>27 - California fuel 2-day evap</b> |
| <b>Exhaust Test # for this Evap Test</b>       | MKMX10065272                               | <b>Test Fuel Type</b>                 | 46 - CARB LEV3 E10 Regular             |
| <b>Test Date</b>                               | 04/25/2020                                 | <b>Fuel</b>                           | Gasoline                               |
| <b>Fuel Batch ID</b>                           | 19E-03                                     | <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>             | 4062                                       | <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) |
|-----------------------------------------------------------|-----------------------|----------------------------------------------------------|
| HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only) | 0.2346                | --                                                       |

**Manufacturer Test Comments** 21MY MQ4a 2.5 18"(ETW:4250) CA E10-2DBL

| Certification Region | Useful Life   | Standard Level                         | Emission Name  | Rounded Result | Add DF | Certification Level | Standard | Pass/Fail |
|----------------------|---------------|----------------------------------------|----------------|----------------|--------|---------------------|----------|-----------|
| Fed                  | 150,000 miles | Federal Tier 3 Evap                    | HC-TOTAL-EQUIV | 0.2346         | 0      | 0.235               | 0.4      | Pass      |
| CA                   | 150,000 miles | California LEV-IV Zero Evap (Option 2) | HC-TOTAL-EQUIV | 0.2346         | 0      | 0.235               | 0.4      | Pass      |

## Certification Summary Information Report

| <b>Test Group</b>                                                                                                                                                                                                                                                          | VKMXT02.5YP3                               | <b>Evaporative/Refueling Family</b>                      | VKMXR0144JPG                                       |                       |                       |                                                          |                                                           |                  |    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|----------------------------------------------------------|----------------------------------------------------|-----------------------|-----------------------|----------------------------------------------------------|-----------------------------------------------------------|------------------|----|
| <b>Test #</b>                                                                                                                                                                                                                                                              | <b>MKMX10065283</b>                        | <b>Test Procedure</b>                                    | <b>24 - Federal fuel refueling test (ORVR)</b>     |                       |                       |                                                          |                                                           |                  |    |
| <b>Exhaust Test # for this Evap Test</b>                                                                                                                                                                                                                                   | MKMX10065273                               | <b>Test Fuel Type</b>                                    | 48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.) |                       |                       |                                                          |                                                           |                  |    |
| <b>Test Date</b>                                                                                                                                                                                                                                                           | 04/22/2020                                 | <b>Fuel</b>                                              | Gasoline                                           |                       |                       |                                                          |                                                           |                  |    |
| <b>Fuel Batch ID</b>                                                                                                                                                                                                                                                       | 19T-03                                     | <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>                                                                                                                                                                                                                                         | 4043                                       | <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-EQUIV (Total Hydrocarbon equivalent - Evap only)</td> <td>0.008</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) | 0.008            | -- |
| Test Result Name                                                                                                                                                                                                                                                           | Unrounded Test Result                      | Verify Calculated FE Equivalent Value (miles per gallon) |                                                    |                       |                       |                                                          |                                                           |                  |    |
| HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)                                                                                                                                                                                                                  | 0.008                                      | --                                                       |                                                    |                       |                       |                                                          |                                                           |                  |    |
| <b>Manufacturer Test Comments</b>                                                                                                                                                                                                                                          |                                            |                                                          |                                                    |                       |                       |                                                          |                                                           |                  |    |
| 21MY MQ4a 2.5 18"(ETW:4250) FED E10-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                                     | 0.008                 | 0.003                 | 0.01                                                     | 0.2                                                       | Pass             |    |
| CA                                                                                                                                                                                                                                                                         | 150,000 miles                              | California LEV-IV Zero Evap (Option 2)                   | HC-TOTAL-EQUIV                                     | 0.008                 | 0.003                 | 0.01                                                     | 0.2                                                       | Pass             |    |

## Certification Summary Information Report

| <b>Test Group</b>                                                                                                                                                                                                                                                           | VKMXT02.5YP3                               | <b>Evaporative/Refueling Family</b>                      | VKMXR0144JPG                             |                       |                       |                                                          |                                                           |                  |    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|----------------------------------------------------------|------------------------------------------|-----------------------|-----------------------|----------------------------------------------------------|-----------------------------------------------------------|------------------|----|
| <b>Test #</b>                                                                                                                                                                                                                                                               | <b>MKMX10065285</b>                        | <b>Test Procedure</b>                                    | <b>37 - California Fuel Running Loss</b> |                       |                       |                                                          |                                                           |                  |    |
| <b>Exhaust Test # for this Evap Test</b>                                                                                                                                                                                                                                    | MKMX10065271                               | <b>Test Fuel Type</b>                                    | 46 - CARB LEV3 E10 Regular Gasoline      |                       |                       |                                                          |                                                           |                  |    |
| <b>Test Date</b>                                                                                                                                                                                                                                                            | 05/28/2020                                 | <b>Fuel</b>                                              | Gasoline                                 |                       |                       |                                                          |                                                           |                  |    |
| <b>Fuel Batch ID</b>                                                                                                                                                                                                                                                        | 19E-03                                     | <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>                                                                                                                                                                                                                                          | 4130                                       | <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-EQUIV (Total Hydrocarbon equivalent - Evap only)</td> <td>0.0003</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) | 0.0003           | -- |
| Test Result Name                                                                                                                                                                                                                                                            | Unrounded Test Result                      | Verify Calculated FE Equivalent Value (miles per gallon) |                                          |                       |                       |                                                          |                                                           |                  |    |
| HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)                                                                                                                                                                                                                   | 0.0003                                     | --                                                       |                                          |                       |                       |                                                          |                                                           |                  |    |
| <b>Manufacturer Test Comments</b>                                                                                                                                                                                                                                           |                                            |                                                          |                                          |                       |                       |                                                          |                                                           |                  |    |
| 21MY MQ4a 2.5 18"(ETW:4250) CA E10-RL                                                                                                                                                                                                                                       |                                            |                                                          |                                          |                       |                       |                                                          |                                                           |                  |    |
| <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                     | 0                     | 0                                                        | 0.05                                                      | Pass             |    |
| CA                                                                                                                                                                                                                                                                          | 150,000 miles                              | California LEV-IV Zero Evap (Option 2)                   | HC-TOTAL-EQUIV                           | 0                     | 0                     | 0                                                        | 0.05                                                      | Pass             |    |

## Certification Summary Information Report

|                                                                                   |                                            |                                        |                                                                 |                       |               |                            |                 |                  |
|-----------------------------------------------------------------------------------|--------------------------------------------|----------------------------------------|-----------------------------------------------------------------|-----------------------|---------------|----------------------------|-----------------|------------------|
| <b>Test Group</b>                                                                 | VKMXT02.5YP3                               | <b>Evaporative/Refueling Family</b>    | VKMXR0144JPG                                                    |                       |               |                            |                 |                  |
| <b>Test #</b>                                                                     | <b>MKMX10065287</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>                                                                  | 05/15/2020                                 | <b>Fuel</b>                            | Gasoline                                                        |                       |               |                            |                 |                  |
| <b>Fuel Batch ID</b>                                                              | 19E-03                                     | <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>                                                | 4092                                       | <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>                                                               |                                            |                                        |                                                                 |                       |               |                            |                 |                  |
| <b>Test Result Name</b>                                                           |                                            | <b>Unrounded Test Result</b>           | <b>Verify Calculated FE Equivalent Value (miles per gallon)</b> |                       |               |                            |                 |                  |
| HC-TOTAL (Total Hydrocarbon)                                                      |                                            | 0.0099                                 | --                                                              |                       |               |                            |                 |                  |
| <b>Manufacturer Test Comments</b>                                                 |                                            |                                        |                                                                 |                       |               |                            |                 |                  |
| 21MY MQ4a 2.5 18"(ETW:4250) CA E10-Bleed-correct E10 evap test measurement method |                                            |                                        |                                                                 |                       |               |                            |                 |                  |
| <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                                                        | 0.0099                | 0             | 0.01                       | 0.02            | Pass             |
| CA                                                                                | 150,000 miles                              | California LEV-IV Zero Evap (Option 2) | HC-TOTAL                                                        | 0.0099                | 0             | 0.01                       | 0.02            | Pass             |

|                                             |                                                                                                                                                                                                                 |                                        |                                                    |                  |                       |                                       |                                             |           |    |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|----------------------------------------------------|------------------|-----------------------|---------------------------------------|---------------------------------------------|-----------|----|
| Test Group                                  | VKMXT02.5YP3                                                                                                                                                                                                    | Evaporative/Refueling Family           | VKMXR0144JPG                                       |                  |                       |                                       |                                             |           |    |
| Test #                                      | MKMX10065286                                                                                                                                                                                                    | Test Procedure                         | 68 - Leak Test - Port Near Fuel Pipe               |                  |                       |                                       |                                             |           |    |
| Exhaust Test # for this Evap Test           | --                                                                                                                                                                                                              | Test Fuel Type                         | 48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.) |                  |                       |                                       |                                             |           |    |
| Test Date                                   | 06/02/2020                                                                                                                                                                                                      | Fuel                                   | Gasoline                                           |                  |                       |                                       |                                             |           |    |
| Fuel Batch ID                               | 19T-03                                                                                                                                                                                                          | Fuel Calibration Number                | 1                                                  |                  |                       |                                       |                                             |           |    |
| Vehicle Class                               | N/A                                                                                                                                                                                                             | DF Type                                | Mfr. Determined                                    |                  |                       |                                       |                                             |           |    |
| Verify Test Lab ID                          | 772-1, Jangduck-Dong                                                                                                                                                                                            |                                        |                                                    |                  |                       |                                       |                                             |           |    |
| E10 Evaporative Test Measurement Method     | --                                                                                                                                                                                                              |                                        |                                                    |                  |                       |                                       |                                             |           |    |
| Test Start Odometer Reading                 | 4131                                                                                                                                                                                                            | Odometer Units                         | M                                                  |                  |                       |                                       |                                             |           |    |
| 4WD Test Dyno                               | No                                                                                                                                                                                                              | Diesel Adjustment Factor Usage         | --                                                 |                  |                       |                                       |                                             |           |    |
| State of Charge Delta                       | --                                                                                                                                                                                                              |                                        |                                                    |                  |                       |                                       |                                             |           |    |
| Drive Cycle Speed Tolerance Criteria        | Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)                                                                                                                                                                       | Road Speed Fan Usage                   | No                                                 |                  |                       |                                       |                                             |           |    |
| Test Results                                |                                                                                                                                                                                                                 |                                        |                                                    |                  |                       |                                       |                                             |           |    |
|                                             | <table><tr><td>Test Result Name</td><td>Unrounded Test Result</td><td>Verify Calculated FE Equivalent Value</td></tr><tr><td>LEAK-DIA (Effective Leak Diameter (inches))</td><td>0</td><td>--</td></tr></table> |                                        |                                                    | Test Result Name | Unrounded Test Result | Verify Calculated FE Equivalent Value | LEAK-DIA (Effective Leak Diameter (inches)) | 0         | -- |
| Test Result Name                            | Unrounded Test Result                                                                                                                                                                                           | Verify Calculated FE Equivalent Value  |                                                    |                  |                       |                                       |                                             |           |    |
| LEAK-DIA (Effective Leak Diameter (inches)) | 0                                                                                                                                                                                                               | --                                     |                                                    |                  |                       |                                       |                                             |           |    |
| Manufacturer Test Comments                  | 21MY MQ4a 2.5 18"(ETW:4250) FED E10-Leak Test Port Near Fuel Pipe                                                                                                                                               |                                        |                                                    |                  |                       |                                       |                                             |           |    |
| Certification Region                        | Useful Life                                                                                                                                                                                                     | Standard Level                         | Emission Name                                      | Rounded Result   | Add DF                | Certification Level                   | Standard                                    | Pass/Fail |    |
| Fed                                         | 150,000 miles                                                                                                                                                                                                   | Federal Tier 3 Evap                    | LEAK-DIA                                           | 0                | 0                     | 0                                     | 0.02                                        | Pass      |    |
| CA                                          | 150,000 miles                                                                                                                                                                                                   | California LEV-IV Zero Evap (Option 2) | LEAK-DIA                                           | 0                | 0                     | 0                                     | 0.02                                        | Pass      |    |

|                                             |                                                                                                                                                                                                                 |                                        |                                                    |                  |                       |                                       |                                             |           |    |
|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|----------------------------------------------------|------------------|-----------------------|---------------------------------------|---------------------------------------------|-----------|----|
| Test Group                                  | VKMXT02.5YP3                                                                                                                                                                                                    | Evaporative/Refueling Family           | VKMXR0144JPG                                       |                  |                       |                                       |                                             |           |    |
| Test #                                      | MKMX10065288                                                                                                                                                                                                    | Test Procedure                         | 67 - Leak Test - Port Near Canister                |                  |                       |                                       |                                             |           |    |
| Exhaust Test # for this Evap Test           | --                                                                                                                                                                                                              | Test Fuel Type                         | 48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.) |                  |                       |                                       |                                             |           |    |
| Test Date                                   | 06/02/2020                                                                                                                                                                                                      | Fuel                                   | Gasoline                                           |                  |                       |                                       |                                             |           |    |
| Fuel Batch ID                               | 19T-03                                                                                                                                                                                                          | Fuel Calibration Number                | 1                                                  |                  |                       |                                       |                                             |           |    |
| Vehicle Class                               | N/A                                                                                                                                                                                                             | DF Type                                | Mfr. Determined                                    |                  |                       |                                       |                                             |           |    |
| Verify Test Lab ID                          | 772-1, Jangduck-Dong                                                                                                                                                                                            |                                        |                                                    |                  |                       |                                       |                                             |           |    |
| E10 Evaporative Test Measurement Method     | --                                                                                                                                                                                                              |                                        |                                                    |                  |                       |                                       |                                             |           |    |
| Test Start Odometer Reading                 | 4131                                                                                                                                                                                                            | Odometer Units                         | M                                                  |                  |                       |                                       |                                             |           |    |
| 4WD Test Dyno                               | No                                                                                                                                                                                                              | Diesel Adjustment Factor Usage         | --                                                 |                  |                       |                                       |                                             |           |    |
| State of Charge Delta                       | --                                                                                                                                                                                                              |                                        |                                                    |                  |                       |                                       |                                             |           |    |
| Drive Cycle Speed Tolerance Criteria        | Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)                                                                                                                                                                       | Road Speed Fan Usage                   | No                                                 |                  |                       |                                       |                                             |           |    |
| Test Results                                |                                                                                                                                                                                                                 |                                        |                                                    |                  |                       |                                       |                                             |           |    |
|                                             | <table><tr><td>Test Result Name</td><td>Unrounded Test Result</td><td>Verify Calculated FE Equivalent Value</td></tr><tr><td>LEAK-DIA (Effective Leak Diameter (inches))</td><td>0</td><td>--</td></tr></table> |                                        |                                                    | Test Result Name | Unrounded Test Result | Verify Calculated FE Equivalent Value | LEAK-DIA (Effective Leak Diameter (inches)) | 0         | -- |
| Test Result Name                            | Unrounded Test Result                                                                                                                                                                                           | Verify Calculated FE Equivalent Value  |                                                    |                  |                       |                                       |                                             |           |    |
| LEAK-DIA (Effective Leak Diameter (inches)) | 0                                                                                                                                                                                                               | --                                     |                                                    |                  |                       |                                       |                                             |           |    |
| Manufacturer Test Comments                  | 21MY MQ4a 2.5 18"(ETW:4250) FED E10-Leak Test Port Near Canister                                                                                                                                                |                                        |                                                    |                  |                       |                                       |                                             |           |    |
| Certification Region                        | Useful Life                                                                                                                                                                                                     | Standard Level                         | Emission Name                                      | Rounded Result   | Add DF                | Certification Level                   | Standard                                    | Pass/Fail |    |
| Fed                                         | 150,000 miles                                                                                                                                                                                                   | Federal Tier 3 Evap                    | LEAK-DIA                                           | 0                | 0                     | 0                                     | 0.02                                        | Pass      |    |
| CA                                          | 150,000 miles                                                                                                                                                                                                   | California LEV-IV Zero Evap (Option 2) | LEAK-DIA                                           | 0                | 0                     | 0                                     | 0.02                                        | Pass      |    |

## Certification Summary Information Report

| <b>Test Group</b>                            | VKMXT02.5YP3                                                                                                                                                            | <b>Evaporative/Refueling Family</b>                   | VKMXR0144JPG         |      |   |                   |          |  |  |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|----------------------|------|---|-------------------|----------|--|--|
| <b>Emission Data Vehicle Information</b>     |                                                                                                                                                                         |                                                       |                      |      |   |                   |          |  |  |
| <b>Vehicle ID / Configuration</b>            | MQ4U4H5TD162A / 0                                                                                                                                                       | <b>Manufacturer Vehicle Configuration Number</b>      | 0                    |      |   |                   |          |  |  |
| <b>Original Test Group Name</b>              | RKMXT02.5JP3                                                                                                                                                            | <b>Original Evaporative/Refueling Family</b>          | RKMXR0144JPG         |      |   |                   |          |  |  |
| <b>Original Test Vehicle Model Year</b>      | 2024                                                                                                                                                                    |                                                       |                      |      |   |                   |          |  |  |
| <b>Vehicle Model</b>                         |                                                                                                                                                                         |                                                       |                      |      |   |                   |          |  |  |
| <b>Represented Test Vehicle Make</b>         | Kia                                                                                                                                                                     | <b>Represented Test Vehicle Model</b>                 | Sorento              |      |   |                   |          |  |  |
| <b>Leak Family Details</b>                   |                                                                                                                                                                         |                                                       |                      |      |   |                   |          |  |  |
| <b>Leak Family Identifier</b>                | MQ4                                                                                                                                                                     | <b>Leak Family Name</b>                               | RKMXR0144JPG-MQ4     |      |   |                   |          |  |  |
| <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>                     | 1.0163               |      |   |                   |          |  |  |
| <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>                           | G4KP-AMC                                                                                                                                                                | <b>Rated Horsepower</b>                               | 281                  |      |   |                   |          |  |  |
| <b>Displacement (liters)</b>                 | 2.5                                                                                                                                                                     |                                                       |                      |      |   |                   |          |  |  |
| <b>Air Aspiration Method</b>                 | Turbocharged                                                                                                                                                            | <b>Air Aspiration Method, if 'Other'</b>              |                      |      |   |                   |          |  |  |
| <b>Number of Air Aspiration Devices</b>      | 1                                                                                                                                                                       | <b>Air Aspiration Device Configuration</b>            | Single               |      |   |                   |          |  |  |
| <b>Charge Air Cooler Type</b>                | Air                                                                                                                                                                     | <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>                     | 4213                                                                                                                                                                    | <b>Equivalent Test Weight (pounds)</b>                | 4500                 |      |   |                   |          |  |  |
| <b>GVWR (lbs)</b>                            | 5401                                                                                                                                                                    | <b>N/V Ratio</b>                                      | 26                   |      |   |                   |          |  |  |
| <b>Axle Ratio</b>                            | 3.32                                                                                                                                                                    |                                                       |                      |      |   |                   |          |  |  |
| <b>Transmission Type</b>                     | Automated Manual- Selectable (e.g. Automated Manual with paddles)                                                                                                       | <b># of Transmission Gears</b>                        | 8                    |      |   |                   |          |  |  |
| <b>Transmission Lockup</b>                   | No                                                                                                                                                                      | <b>Creep Gear</b>                                     | No                   |      |   |                   |          |  |  |

Certification Summary Information Report

|                                    |         |                                  |                |                  |                              |                |                                                                               |  |
|------------------------------------|---------|----------------------------------|----------------|------------------|------------------------------|----------------|-------------------------------------------------------------------------------|--|
| Test Group                         |         | VKMXT02.5YP3                     |                |                  | Evaporative/Refueling Family |                | VKMXR0144JPG                                                                  |  |
| Dynamometer Coefficients:          |         |                                  |                |                  |                              |                |                                                                               |  |
| Target Coefficients                |         |                                  |                | Set Coefficients |                              |                | EPA Calculated Total Road Load Horse Power for City/Highway/Evap Coefficients |  |
| Coefficient Category               | A (lbf) | B (lbf/mph)                      | C (lbf/mph**2) | A (lbf)          | B (lbf/mph)                  | C (lbf/mph**2) |                                                                               |  |
| City/Highway/Evap                  | 36.284  | 0.28805                          | 0.02568        | 15.321           | 0.1133                       | 0.025968       | 15.3                                                                          |  |
| Cold CO                            | 39.912  | 0.31686                          | 0.028248       | 9.658            | -0.02044                     | 0.029485       | N/A                                                                           |  |
| US06                               | 36.284  | 0.28805                          | 0.02568        | 15.321           | 0.1133                       | 0.025968       | N/A                                                                           |  |
| Emission Control Device Comments   |         | --                               |                |                  |                              |                |                                                                               |  |
| Manufacturer Test Vehicle Comments |         | MQ4a PE 2.5T AWD DCT8 17in X-PRO |                |                  |                              |                |                                                                               |  |

## Certification Summary Information Report

|                                                |                                           |                                       |                                                     |
|------------------------------------------------|-------------------------------------------|---------------------------------------|-----------------------------------------------------|
| <b>Test Group</b>                              | VKMXT02.5YP3                              | <b>Evaporative/Refueling Family</b>   | VKMXR0144JPG                                        |
| <b>Test #</b>                                  | <b>RKMX10081467</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>                               | 06/21/2023                                | <b>Fuel</b>                           | Gasoline                                            |
| <b>Fuel Batch ID</b>                           | 21T-01                                    | <b>Fuel Calibration Number</b>        | 1                                                   |
| <b>Vehicle Class</b>                           | LDT2 (LVW 3751-5750, GVW 0-6000)          | <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>             | 4365                                      | <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)                   | 377.6511              | --                                                       |
| FE BAG 1 (Bag 1 Fuel Economy)                      | 22.8663               | 22.8663                                                  |
| CO2 BAG 2 (Bag 2 Carbon Dioxide)                   | 353.9281              | --                                                       |
| FE BAG 2 (Bag 2 Fuel Economy)                      | 24.4848               | 24.4848                                                  |
| CO2 BAG 3 (Bag 3 Carbon Dioxide)                   | 312.8147              | --                                                       |
| FE BAG 3 (Bag 3 Fuel Economy)                      | 27.6871               | 27.6871                                                  |
| METHANE (CH4 - Methane)                            | 0.002                 | --                                                       |
| CO (Carbon Monoxide)                               | 0.1897                | --                                                       |
| DT-ASCR (Drive Trace Absolute Speed Change Rating) | 1.5                   | --                                                       |
| DT-EER (Drive Trace Energy Economy Rating)         | 0.56                  | --                                                       |
| DT-IWRR (Drive Trace Inertia Work Ratio Rating)    | 2.55                  | --                                                       |
| MFR FE (Manufacturer Fuel Economy)                 | 24.8903               | 24.8903                                                  |
| NOX (Nitrogen Oxide)                               | 0.0032                | --                                                       |
| HC-NM (Non-methane Hydrocarbon)                    | 0.0027                | --                                                       |
| NMOG (Non-methane organic gases)                   | 0.003                 | --                                                       |
| PM (Particulate Matter)                            | 0.0007                | --                                                       |
| HC-TOTAL (Total Hydrocarbon)                       | 0.0041                | --                                                       |

| Test Result Name                 | Unrounded Test Result | Verify Calculated CREE/OPT-CREE |
|----------------------------------|-----------------------|---------------------------------|
| Carbon-Related Exhaust Emissions | 348.3106              | 999                             |

## Certification Summary Information Report

| Test Group                                                                                                              |               | VKMXT02.5YP3                      |               |                       | Evaporative/Refueling Family |                  |                          |          | VKMXR0144JPG |                     |          |           |
|-------------------------------------------------------------------------------------------------------------------------|---------------|-----------------------------------|---------------|-----------------------|------------------------------|------------------|--------------------------|----------|--------------|---------------------|----------|-----------|
|                                                                                                                         |               | Test Result Name                  |               | Unrounded Test Result |                              |                  | Verify Calculated CO2    |          |              |                     |          |           |
|                                                                                                                         |               | Carbon dioxide                    |               | 347.5704              |                              |                  | --                       |          |              |                     |          |           |
| Manufacturer Test Comments                                                                                              |               | 24MY MQ4a PE 2.5T AWD 17" E10-FTP |               |                       |                              |                  |                          |          |              |                     |          |           |
| Certification Region                                                                                                    | Useful Life   | Standard Level                    | Emission Name | Rounded Result        | RAF                          | NMOG/NM HC Ratio | Diesel Adjustment Factor | Add DF   | Mult DF      | Certification Level | Standard | Pass/Fail |
| Fed                                                                                                                     | 120,000 miles | Federal Tier 3 Bin 30             | CREE          | 999                   | --                           | --               | --                       | 0.091253 | --           | 999                 | --       | --        |
| Fed                                                                                                                     | 120,000 miles | Federal Tier 3 Bin 30             | METHANE       | 0.002                 | --                           | --               | --                       | 0.0024   | --           | 0.004               | 0.030    | Pass      |
| Fed                                                                                                                     | 150,000 miles | Federal Tier 3 Bin 30             | CO            | 0.19                  | --                           | --               | --                       | 0.1      | --           | 0.3                 | 1.0      | Pass      |
| Fed                                                                                                                     | 150,000 miles | Federal Tier 3 Bin 30             | CO-COMP       | 0.24                  | --                           | --               | --                       | 0        | --           | 0.2                 | 4.2      | Pass      |
| Fed                                                                                                                     | 150,000 miles | Federal Tier 3 Bin 30             | NMOG          | 0.003                 | --                           | 1.1              | --                       | 0.0024   | --           | 0.005               | 99.999   | Pass      |
| Fed                                                                                                                     | 150,000 miles | Federal Tier 3 Bin 30             | NMOG+NOX      | 0.0062                | --                           | --               | --                       | --       | --           | 0.013               | 0.030    | Pass      |
| Fed                                                                                                                     | 150,000 miles | Federal Tier 3 Bin 30             | NMOG+NOX-COMP | 0.0126                | --                           | --               | --                       | 0        | --           | 0.013               | 0.030    | Pass      |
| Fed                                                                                                                     | 150,000 miles | Federal Tier 3 Bin 30             | NOX           | 0.0032                | --                           | --               | --                       | 0.0042   | --           | 0.007               | 99.999   | Pass      |
| Fed                                                                                                                     | 150,000 miles | Federal Tier 3 Bin 30             | PM            | 0.0007                | --                           | --               | --                       | 0        | --           | 0.001               | 0.003    | Pass      |
| CA                                                                                                                      | 150,000 miles | California LEV-IV SULEV30         | CO            | 0.19                  | --                           | --               | --                       | 0.1      | --           | 0.3                 | 1.0      | Pass      |
| CA                                                                                                                      | 150,000 miles | California LEV-IV SULEV30         | NMOG          | 0.003                 | --                           | 1.1              | --                       | 0.0024   | --           | 0.005               | 99.999   | Pass      |
| CA                                                                                                                      | 150,000 miles | California LEV-IV SULEV30         | NMOG+NOX      | 0.0062                | --                           | --               | --                       | --       | --           | 0.013               | 0.030    | Pass      |
| CA                                                                                                                      | 150,000 miles | California LEV-IV SULEV30         | NOX           | 0.0032                | --                           | --               | --                       | 0.0042   | --           | 0.007               | 99.999   | Pass      |
| CA                                                                                                                      | 150,000 miles | California LEV-IV SULEV30         | PM            | 0.0007                | --                           | --               | --                       | 0        | --           | 0.001               | 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

|                                                |                                           |                                       |                                            |
|------------------------------------------------|-------------------------------------------|---------------------------------------|--------------------------------------------|
| <b>Test Group</b>                              | VKMXT02.5YP3                              | <b>Evaporative/Refueling Family</b>   | VKMXR0144JPG                               |
| <b>Test #</b>                                  | <b>RKMX10081471</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>                               | 05/31/2023                                | <b>Fuel</b>                           | Gasoline                                   |
| <b>Fuel Batch ID</b>                           | 22D-01                                    | <b>Fuel Calibration Number</b>        | 1                                          |
| <b>Vehicle Class</b>                           | LDT2 (LVW 3751-5750, GVW 0-6000)          | <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>             | 4206                                      | <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)                   | 435.5323              | --                                                       |
| FE BAG 1 (Bag 1 Fuel Economy)                      | 19.6814               | 19.6814                                                  |
| CO2 BAG 2 (Bag 2 Carbon Dioxide)                   | 374.5538              | --                                                       |
| FE BAG 2 (Bag 2 Fuel Economy)                      | 23.0779               | 23.0779                                                  |
| CO2 BAG 3 (Bag 3 Carbon Dioxide)                   | 316.6296              | --                                                       |
| FE BAG 3 (Bag 3 Fuel Economy)                      | 27.2961               | 27.2961                                                  |
| CO (Carbon Monoxide)                               | 0.4922                | --                                                       |
| DT-ASCR (Drive Trace Absolute Speed Change Rating) | 0.61                  | --                                                       |
| DT-EER (Drive Trace Energy Economy Rating)         | 0.38                  | --                                                       |
| DT-IWRR (Drive Trace Inertia Work Ratio Rating)    | 0.84                  | --                                                       |
| MFR FE (Manufacturer Fuel Economy)                 | 23.278                | 23.278                                                   |
| NOX (Nitrogen Oxide)                               | 0.0035                | --                                                       |
| HC-NM (Non-methane Hydrocarbon)                    | 0.0269                | --                                                       |
| HC-TOTAL (Total Hydrocarbon)                       | 0.0333                | --                                                       |

| Test Result Name | Unrounded Test Result | Verify Calculated CO2 |
|------------------|-----------------------|-----------------------|
| Carbon dioxide   | 371.2837              | --                    |

## Manufacturer Test Comments

24MY MQ4a 2.5T AWD 17" E10-20F

Certification Summary Information Report

| Test Group           |               | VKMXT02.5YP3              |               |                |     | Evaporative/Refueling Family |                          |        |         | VKMXR0144JPG        |          |           |
|----------------------|---------------|---------------------------|---------------|----------------|-----|------------------------------|--------------------------|--------|---------|---------------------|----------|-----------|
| Certification Region | Useful Life   | Standard Level            | Emission Name | Rounded Result | RAF | NMOG/NM HC Ratio             | Diesel Adjustment Factor | Add DF | Mult DF | Certification Level | Standard | Pass/Fail |
| Fed                  | 50,000 miles  | Federal Tier 3 Bin 30     | CO            | 0.49           | --  | --                           | --                       | 0.03   | --      | 0.5                 | 12.5     | Pass      |
| Fed                  | 120,000 miles | Federal Tier 3 Bin 30     | HC-NM         | 0.03           | --  | --                           | --                       | 0.0018 | --      | 0                   | 0.3      | Pass      |
| CA                   | 50,000 miles  | California LEV-IV SULEV30 | CO            | 0.49           | --  | --                           | --                       | 0.03   | --      | 0.5                 | 12.5     | Pass      |

## Certification Summary Information Report

| Test Group                                     | VKMXT02.5YP3                              | Evaporative/Refueling Family          | VKMXR0144JPG                                       |
|------------------------------------------------|-------------------------------------------|---------------------------------------|----------------------------------------------------|
| <b>Test #</b>                                  | <b>RKMX10081472</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>                               | 05/25/2023                                | <b>Fuel</b>                           | Gasoline                                           |
| <b>Fuel Batch ID</b>                           | 21T-01                                    | <b>Fuel Calibration Number</b>        | 1                                                  |
| <b>Vehicle Class</b>                           | LDT2 (LVW 3751-5750, GVW 0-6000)          | <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>           | Yes                                                |

## Test Results

| Test Result Name                                   | Unrounded Test Result | Verify Calculated FE Equivalent Value (miles per gallon) |
|----------------------------------------------------|-----------------------|----------------------------------------------------------|
| CO (Carbon Monoxide)                               | 0.2645                | --                                                       |
| DT-ASCR (Drive Trace Absolute Speed Change Rating) | 1.52                  | --                                                       |
| DT-EER (Drive Trace Energy Economy Rating)         | 1.01                  | --                                                       |
| DT-IWRR (Drive Trace Inertia Work Ratio Rating)    | 1.82                  | --                                                       |
| MFR FE (Manufacturer Fuel Economy)                 | 24.3235               | 24.3235                                                  |
| NOX (Nitrogen Oxide)                               | 0.0039                | --                                                       |
| HC-NM (Non-methane Hydrocarbon)                    | 0.0039                | --                                                       |
| NMOG (Non-methane organic gases)                   | 0.0043                | --                                                       |
| HC-TOTAL (Total Hydrocarbon)                       | 0.0061                | --                                                       |

| Test Result Name | Unrounded Test Result | Verify Calculated CO2 |
|------------------|-----------------------|-----------------------|
| Carbon dioxide   | 356.3891              | --                    |

**Manufacturer Test Comments** 24MY MQ4a 2.5T AWD 17" E10-50F

Certification Summary Information Report

| Test Group           |             | VKMXT02.5YP3              |               |                |     | Evaporative/Refueling Family |                          |        |         | VKMXR0144JPG        |          |           |
|----------------------|-------------|---------------------------|---------------|----------------|-----|------------------------------|--------------------------|--------|---------|---------------------|----------|-----------|
| Certification Region | Useful Life | Standard Level            | Emission Name | Rounded Result | RAF | NMOG/NM HC Ratio             | Diesel Adjustment Factor | Add DF | Mult DF | Certification Level | Standard | Pass/Fail |
| CA                   | 4,000 miles | California LEV-IV SULEV30 | CO            | 0.26           | --  | --                           | --                       | --     | --      | 0.3                 | 1.0      | Pass      |
| CA                   | 4,000 miles | California LEV-IV SULEV30 | NMOG          | 0.0043         | --  | 1.1                          | --                       | --     | --      | 0.004               | 99.999   | Pass      |
| CA                   | 4,000 miles | California LEV-IV SULEV30 | NMOG+NOX      | 0.0082         | --  | --                           | --                       | --     | --      | 0.008               | 0.060    | Pass      |
| CA                   | 4,000 miles | California LEV-IV SULEV30 | NOX           | 0.0039         | --  | --                           | --                       | --     | --      | 0.004               | 99.999   | Pass      |

## Certification Summary Information Report

|                                                |                                           |                                       |                                                     |
|------------------------------------------------|-------------------------------------------|---------------------------------------|-----------------------------------------------------|
| <b>Test Group</b>                              | VKMXT02.5YP3                              | <b>Evaporative/Refueling Family</b>   | VKMXR0144JPG                                        |
| <b>Test #</b>                                  | <b>RKMX91005608</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>                               | 08/25/2023                                | <b>Fuel</b>                           | Gasoline                                            |
| <b>Fuel Batch ID</b>                           | 29351                                     | <b>Fuel Calibration Number</b>        | 1                                                   |
| <b>Vehicle Class</b>                           | LDT2 (LVW 3751-5750, GVW 0-6000)          | <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>             | 4559                                      | <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)                   | 372.699585            | --                                                       |
| FE BAG 1 (Bag 1 Fuel Economy)                      | 23.7969933            | --                                                       |
| CO2 BAG 2 (Bag 2 Carbon Dioxide)                   | 372.2931213           | --                                                       |
| FE BAG 2 (Bag 2 Fuel Economy)                      | 23.9269905            | --                                                       |
| CO2 BAG 3 (Bag 3 Carbon Dioxide)                   | 310.0399475           | --                                                       |
| FE BAG 3 (Bag 3 Fuel Economy)                      | 28.7451801            | --                                                       |
| METHANE (CH4 - Methane)                            | 0.0030071             | --                                                       |
| CO (Carbon Monoxide)                               | 0.2938731             | --                                                       |
| DT-ASCR (Drive Trace Absolute Speed Change Rating) | 1.9634501             | --                                                       |
| DT-EER (Drive Trace Energy Economy Rating)         | 1.1960009             | --                                                       |
| DT-IWRR (Drive Trace Inertia Work Ratio Rating)    | 2.5269611             | --                                                       |
| MFR FE (Manufacturer Fuel Economy)                 | 25.0517273            | --                                                       |
| NOX (Nitrogen Oxide)                               | 0.0035055             | --                                                       |
| N2O (Nitrous Oxide)                                | 0                     | --                                                       |
| HC-NM (Non-methane Hydrocarbon)                    | 0.003435              | --                                                       |
| NMOG (Non-methane organic gases)                   | 0.0035724             | --                                                       |
| HC-TOTAL (Total Hydrocarbon)                       | 0.006113              | --                                                       |

| Test Result Name                 | Unrounded Test Result | Verify Calculated CREE/OPT-CREE |
|----------------------------------|-----------------------|---------------------------------|
| Carbon-Related Exhaust Emissions | 9999.9999999          | 355                             |

## Certification Summary Information Report

| Test Group                                                                                                              |               | VKMXT02.5YP3              |               |                       | Evaporative/Refueling Family |                  |                          |          | VKMXR0144JPG |                     |          |           |
|-------------------------------------------------------------------------------------------------------------------------|---------------|---------------------------|---------------|-----------------------|------------------------------|------------------|--------------------------|----------|--------------|---------------------|----------|-----------|
|                                                                                                                         |               | Test Result Name          |               | Unrounded Test Result |                              |                  | Verify Calculated CO2    |          |              |                     |          |           |
|                                                                                                                         |               | Carbon dioxide            |               | 355.2835693           |                              |                  | --                       |          |              |                     |          |           |
| Manufacturer Test Comments                                                                                              |               | None                      |               |                       |                              |                  |                          |          |              |                     |          |           |
| Certification Region                                                                                                    | Useful Life   | Standard Level            | Emission Name | Rounded Result        | RAF                          | NMOG/NM HC Ratio | Diesel Adjustment Factor | Add DF   | Mult DF      | Certification Level | Standard | Pass/Fail |
| Fed                                                                                                                     | 120,000 miles | Federal Tier 3 Bin 30     | CREE          | 355                   | --                           | --               | --                       | 0.091253 | --           | 355                 | --       | --        |
| Fed                                                                                                                     | 120,000 miles | Federal Tier 3 Bin 30     | METHANE       | 0.003                 | --                           | --               | --                       | 0.0024   | --           | 0.005               | 0.030    | Pass      |
| Fed                                                                                                                     | 120,000 miles | Federal Tier 3 Bin 30     | N2O           | 0                     | --                           | --               | --                       | 0.0002   | --           | 0                   | 0.010    | Pass      |
| Fed                                                                                                                     | 150,000 miles | Federal Tier 3 Bin 30     | CO            | 0.29                  | --                           | --               | --                       | 0.1      | --           | 0.4                 | 1.0      | Pass      |
| Fed                                                                                                                     | 150,000 miles | Federal Tier 3 Bin 30     | NMOG          | 0.0036                | --                           | 1.1              | --                       | 0.0024   | --           | 0.006               | 99.999   | Pass      |
| Fed                                                                                                                     | 150,000 miles | Federal Tier 3 Bin 30     | NMOG+NOX      | 0.0071                | --                           | --               | --                       | --       | --           | 0.014               | 0.030    | Pass      |
| Fed                                                                                                                     | 150,000 miles | Federal Tier 3 Bin 30     | NOX           | 0.0035                | --                           | --               | --                       | 0.0042   | --           | 0.008               | 99.999   | Pass      |
| CA                                                                                                                      | 150,000 miles | California LEV-IV SULEV30 | CO            | 0.29                  | --                           | --               | --                       | 0.1      | --           | 0.4                 | 1.0      | Pass      |
| CA                                                                                                                      | 150,000 miles | California LEV-IV SULEV30 | NMOG          | 0.0036                | --                           | 1.1              | --                       | 0.0024   | --           | 0.006               | 99.999   | Pass      |
| CA                                                                                                                      | 150,000 miles | California LEV-IV SULEV30 | NMOG+NOX      | 0.0071                | --                           | --               | --                       | --       | --           | 0.014               | 0.030    | Pass      |
| CA                                                                                                                      | 150,000 miles | California LEV-IV SULEV30 | NOX           | 0.0035                | --                           | --               | --                       | 0.0042   | --           | 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

|                                                |                                           |                                       |                                                    |
|------------------------------------------------|-------------------------------------------|---------------------------------------|----------------------------------------------------|
| <b>Test Group</b>                              | VKMXT02.5YP3                              | <b>Evaporative/Refueling Family</b>   | VKMXR0144JPG                                       |
| <b>Test #</b>                                  | <b>RKMX10081468</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>                               | 06/21/2023                                | <b>Fuel</b>                           | Gasoline                                           |
| <b>Fuel Batch ID</b>                           | 21T-01                                    | <b>Fuel Calibration Number</b>        | 1                                                  |
| <b>Vehicle Class</b>                           | LDT2 (LVW 3751-5750, GVW 0-6000)          | <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>             | 4375                                      | <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)                               | 0.0488                | --                                                       |
| DT-ASCR (Drive Trace Absolute Speed Change Rating) | 2.24                  | --                                                       |
| DT-EER (Drive Trace Energy Economy Rating)         | 0.01                  | --                                                       |
| DT-IWRR (Drive Trace Inertia Work Ratio Rating)    | 2.9                   | --                                                       |
| MFR FE (Manufacturer Fuel Economy)                 | 37.6808               | 37.6808                                                  |
| NOX (Nitrogen Oxide)                               | 0.0014                | --                                                       |
| HC-NM (Non-methane Hydrocarbon)                    | 0                     | --                                                       |
| NMOG (Non-methane organic gases)                   | 0                     | --                                                       |
| HC-TOTAL (Total Hydrocarbon)                       | 0                     | --                                                       |

| Test Result Name                 | Unrounded Test Result | Verify Calculated CREE/OPT-CREE |
|----------------------------------|-----------------------|---------------------------------|
| Carbon-Related Exhaust Emissions | 230.0786              | 999                             |

| Test Result Name | Unrounded Test Result | Verify Calculated CO2 |
|------------------|-----------------------|-----------------------|
| Carbon dioxide   | 230.4481              | --                    |

**Manufacturer Test Comments** 24MY MQ4a 2.5T AWD 17" E10-HWY

## Certification Summary Information Report

| Test Group           |               | VKMXT02.5YP3              |               |                | Evaporative/Refueling Family |                  |                          |          |         | VKMXR0144JPG        |          |           |
|----------------------|---------------|---------------------------|---------------|----------------|------------------------------|------------------|--------------------------|----------|---------|---------------------|----------|-----------|
| Certification Region | Useful Life   | Standard Level            | Emission Name | Rounded Result | RAF                          | NMOG/NM HC Ratio | Diesel Adjustment Factor | Add DF   | Mult DF | Certification Level | Standard | Pass/Fail |
| Fed                  | 120,000 miles | Federal Tier 3 Bin 30     | CREE          | 999            | --                           | --               | --                       | 0.091253 | --      | 999                 | --       | --        |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 30     | NMOG          | 0              | --                           | 1.03             | --                       | 0.0024   | --      | 0.002               | 99.999   | Pass      |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 30     | NMOG+NOX      | 0.0014         | --                           | --               | --                       | --       | --      | 0.008               | 0.030    | Pass      |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 30     | NOX           | 0.0014         | --                           | --               | --                       | 0.0042   | --      | 0.006               | 99.999   | Pass      |
| CA                   | 150,000 miles | California LEV-IV SULEV30 | NMOG          | 0              | --                           | 1.03             | --                       | 0.0024   | --      | 0.002               | 99.999   | Pass      |
| CA                   | 150,000 miles | California LEV-IV SULEV30 | NMOG+NOX      | 0.0014         | --                           | --               | --                       | --       | --      | 0.008               | 0.030    | Pass      |
| CA                   | 150,000 miles | California LEV-IV SULEV30 | NOX           | 0.0014         | --                           | --               | --                       | 0.0042   | --      | 0.006               | 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

|                                                    |                                           |                                                                 |                           |
|----------------------------------------------------|-------------------------------------------|-----------------------------------------------------------------|---------------------------|
| <b>Test Group</b>                                  | VKMXT02.5YP3                              | <b>Evaporative/Refueling Family</b>                             | VKMXR0144JPG              |
| <b>Test #</b>                                      | <b>RKMX91005609</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>                                   | 08/25/2023                                | <b>Fuel</b>                                                     | Gasoline                  |
| <b>Fuel Batch ID</b>                               | 29351                                     | <b>Fuel Calibration Number</b>                                  | 1                         |
| <b>Vehicle Class</b>                               | LDT2 (LVW 3751-5750, GVW 0-6000)          | <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>                 | 4570                                      | <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>                                |                                           |                                                                 |                           |
| <b>Test Result Name</b>                            | <b>Unrounded Test Result</b>              | <b>Verify Calculated FE Equivalent Value (miles per gallon)</b> |                           |
| METHANE (CH4 - Methane)                            | 0.0007723                                 | --                                                              |                           |
| CO (Carbon Monoxide)                               | 0.0668473                                 | --                                                              |                           |
| DT-ASCR (Drive Trace Absolute Speed Change Rating) | 3.1108975                                 | --                                                              |                           |
| DT-EER (Drive Trace Energy Economy Rating)         | -0.0587267                                | --                                                              |                           |
| DT-IWRR (Drive Trace Inertia Work Ratio Rating)    | 4.206615                                  | --                                                              |                           |
| MFR FE (Manufacturer Fuel Economy)                 | 38.3013382                                | --                                                              |                           |
| NOX (Nitrogen Oxide)                               | 0.0015624                                 | --                                                              |                           |
| N2O (Nitrous Oxide)                                | 0                                         | --                                                              |                           |
| HC-NM (Non-methane Hydrocarbon)                    | 0                                         | --                                                              |                           |
| NMOG (Non-methane organic gases)                   | 0                                         | --                                                              |                           |
| HC-TOTAL (Total Hydrocarbon)                       | 0.0004427                                 | --                                                              |                           |
| <b>Test Result Name</b>                            | <b>Unrounded Test Result</b>              | <b>Verify Calculated CREE/OPT-CREE</b>                          |                           |
| Carbon-Related Exhaust Emissions                   | 9999.9999999                              | 233                                                             |                           |
| <b>Test Result Name</b>                            | <b>Unrounded Test Result</b>              | <b>Verify Calculated CO2</b>                                    |                           |
| Carbon dioxide                                     | 232.5883636                               | --                                                              |                           |
| <b>Manufacturer Test Comments</b>                  | None                                      |                                                                 |                           |

## Certification Summary Information Report

| Test Group           |               | VKMXT02.5YP3              |               |                | Evaporative/Refueling Family |                  |                          |          |         | VKMXR0144JPG        |          |           |
|----------------------|---------------|---------------------------|---------------|----------------|------------------------------|------------------|--------------------------|----------|---------|---------------------|----------|-----------|
| Certification Region | Useful Life   | Standard Level            | Emission Name | Rounded Result | RAF                          | NMOG/NM HC Ratio | Diesel Adjustment Factor | Add DF   | Mult DF | Certification Level | Standard | Pass/Fail |
| Fed                  | 120,000 miles | Federal Tier 3 Bin 30     | CREE          | 233            | --                           | --               | --                       | 0.091253 | --      | 233                 | --       | --        |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 30     | NMOG          | 0              | --                           | 1.03             | --                       | 0.0024   | --      | 0.002               | 99.999   | Pass      |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 30     | NMOG+NOX      | 0.0016         | --                           | --               | --                       | --       | --      | 0.008               | 0.030    | Pass      |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 30     | NOX           | 0.0016         | --                           | --               | --                       | 0.0042   | --      | 0.006               | 99.999   | Pass      |
| CA                   | 150,000 miles | California LEV-IV SULEV30 | NMOG          | 0              | --                           | 1.03             | --                       | 0.0024   | --      | 0.002               | 99.999   | Pass      |
| CA                   | 150,000 miles | California LEV-IV SULEV30 | NMOG+NOX      | 0.0016         | --                           | --               | --                       | --       | --      | 0.008               | 0.030    | Pass      |
| CA                   | 150,000 miles | California LEV-IV SULEV30 | NOX           | 0.0016         | --                           | --               | --                       | 0.0042   | --      | 0.006               | 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                                     | VKMXT02.5YP3                              | Evaporative/Refueling Family          | VKMXR0144JPG                                       |
|------------------------------------------------|-------------------------------------------|---------------------------------------|----------------------------------------------------|
| <b>Test #</b>                                  | <b>RKMX10081469</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>                               | 06/21/2023                                | <b>Fuel</b>                           | Gasoline                                           |
| <b>Fuel Batch ID</b>                           | 21T-01                                    | <b>Fuel Calibration Number</b>        | 1                                                  |
| <b>Vehicle Class</b>                           | LDT2 (LVW 3751-5750, GVW 0-6000)          | <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>             | 4395                                      | <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)                   | 577.9782              | --                                                       |
| FE BAG 1 (Bag 1 Fuel Economy)                      | 14.9841               | 14.9841                                                  |
| CO2 BAG 2 (Bag 2 Carbon Dioxide)                   | 313.2156              | --                                                       |
| FE BAG 2 (Bag 2 Fuel Economy)                      | 27.6783               | 27.6783                                                  |
| CO (Carbon Monoxide)                               | 0.1869                | --                                                       |
| DT-ASCR (Drive Trace Absolute Speed Change Rating) | -4.02                 | --                                                       |
| DT-EER (Drive Trace Energy Economy Rating)         | -1.5                  | --                                                       |
| DT-IWRR (Drive Trace Inertia Work Ratio Rating)    | -6.37                 | --                                                       |
| MFR FE (Manufacturer Fuel Economy)                 | 23.2858               | 23.2858                                                  |
| NOX (Nitrogen Oxide)                               | 0.0054                | --                                                       |
| HC-NM (Non-methane Hydrocarbon)                    | 0.0025                | --                                                       |
| NMOG (Non-methane organic gases)                   | 0.0026                | --                                                       |
| PM (Particulate Matter)                            | 0.0014                | --                                                       |
| HC-TOTAL (Total Hydrocarbon)                       | 0.0037                | --                                                       |

| Test Result Name | Unrounded Test Result | Verify Calculated CO2 |
|------------------|-----------------------|-----------------------|
| Carbon dioxide   | 371.9355              | --                    |

## Manufacturer Test Comments

24MY MQ4a 2.5T AWD 17" E10-US06

## Certification Summary Information Report

| Test Group           |               | VKMXT02.5YP3              |               |                |     | Evaporative/Refueling Family |                          |        |         | VKMXR0144JPG        |          |           |
|----------------------|---------------|---------------------------|---------------|----------------|-----|------------------------------|--------------------------|--------|---------|---------------------|----------|-----------|
| Certification Region | Useful Life   | Standard Level            | Emission Name | Rounded Result | RAF | NMOG/NM HC Ratio             | Diesel Adjustment Factor | Add DF | Mult DF | Certification Level | Standard | Pass/Fail |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 30     | CO            | 0.1869         | --  | --                           | --                       | 0.1    | --      | 0.287               | 99.999   | Pass      |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 30     | NMOG          | 0.0026         | --  | 1.03                         | --                       | 0.0024 | --      | 0.005               | 99.999   | Pass      |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 30     | NMOG+NOX      | 0.008          | --  | --                           | --                       | --     | --      | 0.015               | 99.999   | Pass      |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 30     | NOX           | 0.0054         | --  | --                           | --                       | 0.0042 | --      | 0.01                | 99.999   | Pass      |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 30     | PM            | 0.0014         | --  | --                           | --                       | 0      | --      | 0.001               | 0.006    | Pass      |
| CA                   | 150,000 miles | California LEV-IV SULEV30 | CO            | 0.19           | --  | --                           | --                       | 0.1    | --      | 0.3                 | 9.6      | Pass      |
| CA                   | 150,000 miles | California LEV-IV SULEV30 | NMOG          | 0.0026         | --  | 1.03                         | --                       | 0.0024 | --      | 0.005               | 99.999   | Pass      |
| CA                   | 150,000 miles | California LEV-IV SULEV30 | NMOG+NOX      | 0.008          | --  | --                           | --                       | --     | --      | 0.015               | 0.036    | Pass      |
| CA                   | 150,000 miles | California LEV-IV SULEV30 | NOX           | 0.0054         | --  | --                           | --                       | 0.0042 | --      | 0.01                | 99.999   | Pass      |
| CA                   | 150,000 miles | California LEV-IV SULEV30 | PM            | 0.0014         | --  | --                           | --                       | 0      | --      | 0.001               | 0.006    | Pass      |

## Certification Summary Information Report

|                                                |                                           |                                       |                                                    |
|------------------------------------------------|-------------------------------------------|---------------------------------------|----------------------------------------------------|
| <b>Test Group</b>                              | VKMXT02.5YP3                              | <b>Evaporative/Refueling Family</b>   | VKMXR0144JPG                                       |
| <b>Test #</b>                                  | <b>RKMX10081470</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>                               | 05/24/2023                                | <b>Fuel</b>                           | Gasoline                                           |
| <b>Fuel Batch ID</b>                           | 21T-01                                    | <b>Fuel Calibration Number</b>        | 1                                                  |
| <b>Vehicle Class</b>                           | LDT2 (LVW 3751-5750, GVW 0-6000)          | <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>             | 4121                                      | <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>                               | 0.0565                | --                                                       |
| <b>DT-ASCR (Drive Trace Absolute Speed Change Rating)</b> | -2.54                 | --                                                       |
| <b>DT-EER (Drive Trace Energy Economy Rating)</b>         | -1.01                 | --                                                       |
| <b>DT-IWRR (Drive Trace Inertia Work Ratio Rating)</b>    | -3.17                 | --                                                       |
| <b>MFR FE (Manufacturer Fuel Economy)</b>                 | 19.2189               | 19.2189                                                  |
| <b>NOX (Nitrogen Oxide)</b>                               | 0.0043                | --                                                       |
| <b>HC-NM (Non-methane Hydrocarbon)</b>                    | 0                     | --                                                       |
| <b>NMOG (Non-methane organic gases)</b>                   | 0                     | --                                                       |
| <b>HC-TOTAL (Total Hydrocarbon)</b>                       | 0.0005                | --                                                       |

| Test Result Name      | Unrounded Test Result | Verify Calculated CO2 |
|-----------------------|-----------------------|-----------------------|
| <b>Carbon dioxide</b> | 451.3394              | --                    |

## Manufacturer Test Comments

24MY MQ4a 2.5T AWD 17" E10-SC03

## Certification Summary Information Report

| Test Group           |               | VKMXT02.5YP3              |               |                | Evaporative/Refueling Family |                  |                          |        |         | VKMXR0144JPG        |          |           |
|----------------------|---------------|---------------------------|---------------|----------------|------------------------------|------------------|--------------------------|--------|---------|---------------------|----------|-----------|
| Certification Region | Useful Life   | Standard Level            | Emission Name | Rounded Result | RAF                          | NMOG/NM HC Ratio | Diesel Adjustment Factor | Add DF | Mult DF | Certification Level | Standard | Pass/Fail |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 30     | CO            | 0.0565         | --                           | --               | --                       | 0.1    | --      | 0.156               | 99.999   | Pass      |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 30     | NMOG          | 0              | --                           | 1.03             | --                       | 0.0024 | --      | 0.002               | 99.999   | Pass      |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 30     | NMOG+NOX      | 0.0043         | --                           | --               | --                       | --     | --      | 0.011               | 99.999   | Pass      |
| Fed                  | 150,000 miles | Federal Tier 3 Bin 30     | NOX           | 0.0043         | --                           | --               | --                       | 0.0042 | --      | 0.008               | 99.999   | Pass      |
| CA                   | 150,000 miles | California LEV-IV SULEV30 | CO            | 0.06           | --                           | --               | --                       | 0.1    | --      | 0.2                 | 1.0      | Pass      |
| CA                   | 150,000 miles | California LEV-IV SULEV30 | NMOG          | 0              | --                           | 1.03             | --                       | 0.0024 | --      | 0.002               | 99.999   | Pass      |
| CA                   | 150,000 miles | California LEV-IV SULEV30 | NMOG+NOX      | 0.0043         | --                           | --               | --                       | --     | --      | 0.011               | 0.030    | Pass      |
| CA                   | 150,000 miles | California LEV-IV SULEV30 | NOX           | 0.0043         | --                           | --               | --                       | 0.0042 | --      | 0.008               | 99.999   | Pass      |

## Certification Summary Information Report

| Test Group                                                                | VKMXT02.5YP3                                       | Evaporative/Refueling Family                                              | VKMXR0144JPG |
|---------------------------------------------------------------------------|----------------------------------------------------|---------------------------------------------------------------------------|--------------|
| <b>Fuel Properties</b>                                                    |                                                    |                                                                           |              |
| <b>Fuel Batch ID</b>                                                      | <b>21T-01</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>                                        | 07/24/2021   |
| <b>Fuel Batch Calibration Effective Date</b>                              | 12/24/2021                                         | <b>Fuel Batch Calibration Ineffective Date</b>                            | 12/24/2024   |
| <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>                                              | 0.746        |
| <b>Fuel Ethanol Volume Percent (%)</b>                                    | 9.7                                                | <b>Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)</b> | 17945        |
| <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> | 0.828                                              | <b>Weight Fraction CO2</b>                                                | --           |
| <b>Fuel Batch ID</b>                                                      | <b>19E-03</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>                                        | 08/08/2019   |
| <b>Fuel Batch Calibration Effective Date</b>                              | 10/29/2019                                         | <b>Fuel Batch Calibration Ineffective Date</b>                            | 10/29/2022   |
| <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>                                              | 0.75         |
| <b>Fuel Ethanol Volume Percent (%)</b>                                    | 9.6                                                | <b>Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)</b> | 17917        |
| <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> | 0.827                                              | <b>Weight Fraction CO2</b>                                                | --           |
| <b>Fuel Batch ID</b>                                                      | <b>29351</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>                                        | 05/03/2023   |
| <b>Fuel Batch Calibration Effective Date</b>                              | 05/03/2023                                         | <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> | 18439        |
| <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>19T-03</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>                                        | 08/22/2019   |
| <b>Fuel Batch Calibration Effective Date</b>                              | 04/13/2020                                         | <b>Fuel Batch Calibration Ineffective Date</b>                            | 04/13/2023   |
| <b>Carbon Weight Fraction NMHC</b>                                        | --                                                 | <b>Carbon Weight Fraction HC</b>                                          | --           |

## Certification Summary Information Report

| Test Group                                                         | VKMXT02.5YP3                               | Evaporative/Refueling Family                                       | VKMXR0144JPG |
|--------------------------------------------------------------------|--------------------------------------------|--------------------------------------------------------------------|--------------|
| Exhaust Carbon Weight Fraction                                     | --                                         | Fuel Methanol Volume Fraction                                      | --           |
| Fuel Density (grams/cubic ft)                                      | --                                         | Fuel Specific Gravity                                              | 0.743        |
| Fuel Ethanol Volume Percent (%)                                    | 9.8                                        | Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb) | 17949        |
| Fuel Net Heat of Combustion (E10) (MJ/kg)                          | --                                         | Fuel Carbon Mass Fraction (E10)                                    | --           |
| Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0) | 0.826                                      | Weight Fraction CO2                                                | --           |
| Fuel Batch ID                                                      | 22D-01                                     | Fuel Calibration Number                                            | 1            |
| Test Fuel Type                                                     | 28 - Cold CO E10 Regular Gasoline (Tier 3) | Fuel Batch Calibration Date                                        | 07/29/2021   |
| Fuel Batch Calibration Effective Date                              | 05/10/2022                                 | Fuel Batch Calibration Ineffective Date                            | 05/10/2025   |
| Carbon Weight Fraction NMHC                                        | --                                         | Carbon Weight Fraction HC                                          | --           |
| Exhaust Carbon Weight Fraction                                     | --                                         | Fuel Methanol Volume Fraction                                      | --           |
| Fuel Density (grams/cubic ft)                                      | --                                         | Fuel Specific Gravity                                              | 0.742        |
| Fuel Ethanol Volume Percent (%)                                    | 9.9                                        | Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb) | 17925        |
| Fuel Net Heat of Combustion (E10) (MJ/kg)                          | --                                         | Fuel Carbon Mass Fraction (E10)                                    | --           |
| Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0) | 0.828                                      | Weight Fraction CO2                                                | --           |

## Certification Summary Information Report

|                                |  |                                     |                |     |                              |                                 |                                         |         |          |        |
|--------------------------------|--|-------------------------------------|----------------|-----|------------------------------|---------------------------------|-----------------------------------------|---------|----------|--------|
| Test Group                     |  | VKMXT02.5YP3                        |                |     | Evaporative/Refueling Family |                                 | VKMXR0144JPG                            |         |          |        |
| Consolidated List of Standards |  |                                     |                |     |                              |                                 |                                         |         |          |        |
| Exhaust Standards              |  |                                     |                |     |                              |                                 |                                         |         |          |        |
| Cert Region                    |  | California + CAA Section 177 states |                |     | Cert/In-Use Code             |                                 | Cert                                    |         |          |        |
| Vehicle Class                  |  | LDT2 (LVW 3751-5750, GVW 0-6000)    |                |     | Standard Level               |                                 | California LEV-IV SULEV30               |         |          |        |
| Fuel                           |  | Gasoline                            |                |     | Test Procedure               |                                 | SC03                                    |         |          |        |
| Useful Life                    |  | Emission Name                       | Rounded Result | RAF | NMOG / NMHC                  | Upward Diesel Adjustment Factor | Downward Diesel Adjustment Factor       | Mult DF | Add DF   | Std    |
| 150,000 miles                  |  | CO                                  | --             | --  | --                           | --                              | --                                      | --      | 0.1      | 1.0    |
| 150,000 miles                  |  | NMOG                                | --             | --  | 1.03                         | --                              | --                                      | --      | 0.0024   | 99.999 |
| 150,000 miles                  |  | NMOG+NOX                            | --             | --  | --                           | --                              | --                                      | --      | 0        | 0.030  |
| 150,000 miles                  |  | NOX                                 | --             | --  | --                           | --                              | --                                      | --      | 0.0042   | 99.999 |
|                                |  |                                     |                |     |                              |                                 |                                         |         |          |        |
| Cert Region                    |  | Federal                             |                |     | Cert/In-Use Code             |                                 | Cert                                    |         |          |        |
| Vehicle Class                  |  | LDT2 (LVW 3751-5750, GVW 0-6000)    |                |     | Standard Level               |                                 | Federal Tier 3 Bin 30                   |         |          |        |
| Fuel                           |  | Gasoline                            |                |     | Test Procedure               |                                 | 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                                | --             | --  | --                           | --                              | --                                      | --      | 0.091253 | 999    |
| 120,000 miles                  |  | METHANE                             | --             | --  | --                           | --                              | --                                      | --      | 0.0024   | 0.030  |
| 120,000 miles                  |  | N2O                                 | --             | --  | --                           | --                              | --                                      | --      | 0.0002   | 0.010  |
| 150,000 miles                  |  | CO                                  | --             | --  | --                           | --                              | --                                      | --      | 0.1      | 1.0    |
| 150,000 miles                  |  | CO-COMP                             | --             | --  | --                           | --                              | --                                      | --      | 0        | 4.2    |
| 150,000 miles                  |  | HCHO                                | --             | --  | --                           | --                              | --                                      | --      | --       | 0.004  |
| 150,000 miles                  |  | NMOG                                | --             | --  | 1.1                          | --                              | --                                      | --      | 0.0024   | 99.999 |
| 150,000 miles                  |  | NMOG+NOX                            | --             | --  | --                           | --                              | --                                      | --      | 0        | 0.030  |
| 150,000 miles                  |  | NMOG+NOX-COMP                       | --             | --  | --                           | --                              | --                                      | --      | 0        | 0.030  |
| 150,000 miles                  |  | NOX                                 | --             | --  | --                           | --                              | --                                      | --      | 0.0042   | 99.999 |
| 150,000 miles                  |  | PM                                  | --             | --  | --                           | --                              | --                                      | --      | 0        | 0.003  |
|                                |  |                                     |                |     |                              |                                 |                                         |         |          |        |

## Certification Summary Information Report

|                      |                      |                                     |            |                    |                                        |                                          |                |                                         |            |
|----------------------|----------------------|-------------------------------------|------------|--------------------|----------------------------------------|------------------------------------------|----------------|-----------------------------------------|------------|
| <b>Test Group</b>    |                      | VKMXT02.5YP3                        |            |                    | <b>Evaporative/Refueling Family</b>    |                                          |                | VKMXR0144JPG                            |            |
| <b>Cert Region</b>   |                      | California + CAA Section 177 states |            |                    | <b>Cert/In-Use Code</b>                |                                          |                | Cert                                    |            |
| <b>Vehicle Class</b> |                      | LDT2 (LVW 3751-5750, GVW 0-6000)    |            |                    | <b>Standard Level</b>                  |                                          |                | California LEV-IV SULEV30               |            |
| <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                   | --                                  | --         | --                 | --                                     | --                                       | --             | 0.1                                     | 1.0        |
| 150,000 miles        | HCHO                 | --                                  | --         | --                 | --                                     | --                                       | --             | --                                      | 0.004      |
| 150,000 miles        | NMOG                 | --                                  | --         | 1.1                | --                                     | --                                       | --             | 0.0024                                  | 99.999     |
| 150,000 miles        | NMOG+NOX             | --                                  | --         | --                 | --                                     | --                                       | --             | 0                                       | 0.030      |
| 150,000 miles        | NOX                  | --                                  | --         | --                 | --                                     | --                                       | --             | 0.0042                                  | 99.999     |
| 150,000 miles        | PM                   | --                                  | --         | --                 | --                                     | --                                       | --             | 0                                       | 0.003      |
|                      |                      |                                     |            |                    |                                        |                                          |                |                                         |            |
| <b>Cert Region</b>   |                      | Federal                             |            |                    | <b>Cert/In-Use Code</b>                |                                          |                | Cert                                    |            |
| <b>Vehicle Class</b> |                      | LDT2 (LVW 3751-5750, GVW 0-6000)    |            |                    | <b>Standard Level</b>                  |                                          |                | Federal Tier 3 Bin 30                   |            |
| <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                   | --                                  | --         | --                 | --                                     | --                                       | --             | 0.03                                    | 12.5       |
| 120,000 miles        | HC-NM                | --                                  | --         | --                 | --                                     | --                                       | --             | 0.0018                                  | 0.3        |
|                      |                      |                                     |            |                    |                                        |                                          |                |                                         |            |
| <b>Cert Region</b>   |                      | Federal                             |            |                    | <b>Cert/In-Use Code</b>                |                                          |                | Cert                                    |            |
| <b>Vehicle Class</b> |                      | LDT2 (LVW 3751-5750, GVW 0-6000)    |            |                    | <b>Standard Level</b>                  |                                          |                | Federal Tier 3 Bin 30                   |            |
| <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                   | --                                  | --         | --                 | --                                     | --                                       | --             | 0.1                                     | 99.999     |
| 150,000 miles        | NMOG                 | --                                  | --         | 1.03               | --                                     | --                                       | --             | 0.0024                                  | 99.999     |
| 150,000 miles        | NMOG+NOX             | --                                  | --         | --                 | --                                     | --                                       | --             | 0                                       | 99.999     |
| 150,000 miles        | NOX                  | --                                  | --         | --                 | --                                     | --                                       | --             | 0.0042                                  | 99.999     |

## Certification Summary Information Report

|                      |                      |                                     |            |                    |                                        |                                          |                |                           |            |
|----------------------|----------------------|-------------------------------------|------------|--------------------|----------------------------------------|------------------------------------------|----------------|---------------------------|------------|
| <b>Test Group</b>    |                      | VKMXT02.5YP3                        |            |                    | <b>Evaporative/Refueling Family</b>    |                                          |                | VKMXR0144JPG              |            |
| <b>Cert Region</b>   |                      | California + CAA Section 177 states |            |                    | <b>Cert/In-Use Code</b>                |                                          |                | Cert                      |            |
| <b>Vehicle Class</b> |                      | LDT2 (LVW 3751-5750, GVW 0-6000)    |            |                    | <b>Standard Level</b>                  |                                          |                | California LEV-IV SULEV30 |            |
| <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                   | --                                  | --         | --                 | --                                     | --                                       | --             | 0.1                       | 9.6        |
| 150,000 miles        | NMOG                 | --                                  | --         | 1.03               | --                                     | --                                       | --             | 0.0024                    | 99.999     |
| 150,000 miles        | NMOG+NOX             | --                                  | --         | --                 | --                                     | --                                       | --             | 0                         | 0.036      |
| 150,000 miles        | NOX                  | --                                  | --         | --                 | --                                     | --                                       | --             | 0.0042                    | 99.999     |
| 150,000 miles        | PM                   | --                                  | --         | --                 | --                                     | --                                       | --             | 0                         | 0.006      |
|                      |                      |                                     |            |                    |                                        |                                          |                |                           |            |
| <b>Cert Region</b>   |                      | California + CAA Section 177 states |            |                    | <b>Cert/In-Use Code</b>                |                                          |                | Cert                      |            |
| <b>Vehicle Class</b> |                      | LDT2 (LVW 3751-5750, GVW 0-6000)    |            |                    | <b>Standard Level</b>                  |                                          |                | California LEV-IV SULEV30 |            |
| <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               | --                                     | --                                       | --             | 0.0024                    | 99.999     |
| 150,000 miles        | NMOG+NOX             | --                                  | --         | --                 | --                                     | --                                       | --             | 0                         | 0.030      |
| 150,000 miles        | NOX                  | --                                  | --         | --                 | --                                     | --                                       | --             | 0.0042                    | 99.999     |
|                      |                      |                                     |            |                    |                                        |                                          |                |                           |            |
| <b>Cert Region</b>   |                      | Federal                             |            |                    | <b>Cert/In-Use Code</b>                |                                          |                | Cert                      |            |
| <b>Vehicle Class</b> |                      | LDT2 (LVW 3751-5750, GVW 0-6000)    |            |                    | <b>Standard Level</b>                  |                                          |                | Federal Tier 3 Bin 30     |            |
| <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                   | --                                  | --         | --                 | --                                     | --                                       | --             | 0.1                       | 99.999     |
| 150,000 miles        | NMOG                 | --                                  | --         | 1.03               | --                                     | --                                       | --             | 0.0024                    | 99.999     |
| 150,000 miles        | NMOG+NOX             | --                                  | --         | --                 | --                                     | --                                       | --             | 0                         | 99.999     |
| 150,000 miles        | NOX                  | --                                  | --         | --                 | --                                     | --                                       | --             | 0.0042                    | 99.999     |
| 150,000 miles        | PM                   | --                                  | --         | --                 | --                                     | --                                       | --             | 0                         | 0.006      |

## Certification Summary Information Report

|                      |                      |                                     |            |                    |                                        |                                          |                |                           |            |
|----------------------|----------------------|-------------------------------------|------------|--------------------|----------------------------------------|------------------------------------------|----------------|---------------------------|------------|
| <b>Test Group</b>    |                      | VKMXT02.5YP3                        |            |                    | <b>Evaporative/Refueling Family</b>    |                                          |                | VKMXR0144JPG              |            |
| <b>Cert Region</b>   |                      | California + CAA Section 177 states |            |                    | <b>Cert/In-Use Code</b>                |                                          |                | Cert                      |            |
| <b>Vehicle Class</b> |                      | LDT2 (LVW 3751-5750, GVW 0-6000)    |            |                    | <b>Standard Level</b>                  |                                          |                | California LEV-IV SULEV30 |            |
| <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                   | --                                  | --         | --                 | --                                     | --                                       | --             | --                        | 1.0        |
| 4,000 miles          | HCHO                 | --                                  | --         | --                 | --                                     | --                                       | --             | --                        | 0.008      |
| 4,000 miles          | NMOG                 | --                                  | --         | 1.1                | --                                     | --                                       | --             | --                        | 99.999     |
| 4,000 miles          | NMOG+NOX             | --                                  | --         | --                 | --                                     | --                                       | 1              | --                        | 0.060      |
| 4,000 miles          | NOX                  | --                                  | --         | --                 | --                                     | --                                       | --             | --                        | 99.999     |

|                      |                      |                                  |            |                    |                                        |                                          |                |                       |            |
|----------------------|----------------------|----------------------------------|------------|--------------------|----------------------------------------|------------------------------------------|----------------|-----------------------|------------|
| <b>Cert Region</b>   |                      | Federal                          |            |                    | <b>Cert/In-Use Code</b>                |                                          |                | Cert                  |            |
| <b>Vehicle Class</b> |                      | LDT2 (LVW 3751-5750, GVW 0-6000) |            |                    | <b>Standard Level</b>                  |                                          |                | Federal Tier 3 Bin 30 |            |
| <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                 | --                               | --         | --                 | --                                     | --                                       | --             | 0.091253              | 999        |
| 150,000 miles        | NMOG                 | --                               | --         | 1.03               | --                                     | --                                       | --             | 0.0024                | 99.999     |
| 150,000 miles        | NMOG+NOX             | --                               | --         | --                 | --                                     | --                                       | --             | 0                     | 0.030      |
| 150,000 miles        | NOX                  | --                               | --         | --                 | --                                     | --                                       | --             | 0.0042                | 99.999     |

|                      |                      |                                     |            |                    |                                        |                                          |                |                           |            |
|----------------------|----------------------|-------------------------------------|------------|--------------------|----------------------------------------|------------------------------------------|----------------|---------------------------|------------|
| <b>Cert Region</b>   |                      | California + CAA Section 177 states |            |                    | <b>Cert/In-Use Code</b>                |                                          |                | Cert                      |            |
| <b>Vehicle Class</b> |                      | LDT2 (LVW 3751-5750, GVW 0-6000)    |            |                    | <b>Standard Level</b>                  |                                          |                | California LEV-IV SULEV30 |            |
| <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                   | --                                  | --         | --                 | --                                     | --                                       | --             | 0.03                      | 12.5       |

## Evaporative/Refueling Standards

## Certification Summary Information Report

|                              |               |                                    |                |                              |        |                                        |  |
|------------------------------|---------------|------------------------------------|----------------|------------------------------|--------|----------------------------------------|--|
| Test Group                   |               | VKMXT02.5YP3                       |                | Evaporative/Refueling Family |        | VKMXR0144JPG                           |  |
| Evaporative/Refueling Family |               | VKMXR0144JPG                       |                | 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                         | 0.003  |                                        |  |
|                              |               |                                    |                |                              |        |                                        |  |
| Evaporative/Refueling Family |               | VKMXR0144JPG                       |                | 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                     | --             | 0.400                        | 0      |                                        |  |
|                              |               |                                    |                |                              |        |                                        |  |
| Evaporative/Refueling Family |               | VKMXR0144JPG                       |                | Cert Region                  |        | Federal                                |  |
| Cert/In-Use Code             |               | Cert                               |                | Standard Level               |        | Federal Tier 3 Evap                    |  |
| Test Procedure               |               | Leak Test - Port Near Fuel Pipe    |                |                              |        |                                        |  |
| Fuel                         | Useful Life   | Emission Name                      | Rounded Result | Std                          | Add DF |                                        |  |
| Gasoline                     | 150,000 miles | LEAK-DIA                           | --             | 0.020                        | 0      |                                        |  |
|                              |               |                                    |                |                              |        |                                        |  |
| Evaporative/Refueling Family |               | VKMXR0144JPG                       |                | 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 |               | VKMXR0144JPG                       |                | 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      |                                        |  |
|                              |               |                                    |                |                              |        |                                        |  |

## Certification Summary Information Report

|                              |               |                                 |                |                              |        |                                        |  |
|------------------------------|---------------|---------------------------------|----------------|------------------------------|--------|----------------------------------------|--|
| Test Group                   |               | VKMXT02.5YP3                    |                | Evaporative/Refueling Family |        | VKMXR0144JPG                           |  |
| Evaporative/Refueling Family |               | VKMXR0144JPG                    |                | Cert Region                  |        | California + CAA Section 177 states    |  |
| Cert/In-Use Code             |               | Cert                            |                | Standard Level               |        | California LEV-IV Zero Evap (Option 2) |  |
| Test Procedure               |               | Leak Test - Port Near Canister  |                |                              |        |                                        |  |
| Fuel                         | Useful Life   | Emission Name                   | Rounded Result | Std                          | Add DF |                                        |  |
| Gasoline                     | 150,000 miles | LEAK-DIA                        | --             | 0.02                         | 0      |                                        |  |
|                              |               |                                 |                |                              |        |                                        |  |
| Evaporative/Refueling Family |               | VKMXR0144JPG                    |                | 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 |               | VKMXR0144JPG                    |                | 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 |               | VKMXR0144JPG                    |                | 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 |               | VKMXR0144JPG                    |                | 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                  | --             | 0.400                        | 0      |                                        |  |
|                              |               |                                 |                |                              |        |                                        |  |

## Certification Summary Information Report

|                              |  |                                    |  |                              |  |                     |  |       |  |        |  |
|------------------------------|--|------------------------------------|--|------------------------------|--|---------------------|--|-------|--|--------|--|
| Test Group                   |  | VKMXT02.5YP3                       |  | Evaporative/Refueling Family |  | VKMXR0144JPG        |  |       |  |        |  |
| Evaporative/Refueling Family |  | VKMXR0144JPG                       |  | Cert Region                  |  | Federal             |  |       |  |        |  |
| Cert/In-Use Code             |  | Cert                               |  | Standard Level               |  | Federal Tier 3 Evap |  |       |  |        |  |
| Test Procedure               |  | California fuel 2-day evap         |  |                              |  |                     |  |       |  |        |  |
| Fuel                         |  | Useful Life                        |  | Emission Name                |  | Rounded Result      |  | Std   |  | Add DF |  |
| Gasoline                     |  | 150,000 miles                      |  | HC-TOTAL-EQUIV               |  | --                  |  | 0.400 |  | 0      |  |
|                              |  |                                    |  |                              |  |                     |  |       |  |        |  |
| Evaporative/Refueling Family |  | VKMXR0144JPG                       |  | 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  |  | 0.003  |  |
|                              |  |                                    |  |                              |  |                     |  |       |  |        |  |
| Evaporative/Refueling Family |  | VKMXR0144JPG                       |  | 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 |  | VKMXR0144JPG                       |  | Cert Region                  |  | Federal             |  |       |  |        |  |
| Cert/In-Use Code             |  | Cert                               |  | Standard Level               |  | Federal Tier 3 Evap |  |       |  |        |  |
| Test Procedure               |  | CA fuel 3-day evap.                |  |                              |  |                     |  |       |  |        |  |
| Fuel                         |  | Useful Life                        |  | Emission Name                |  | Rounded Result      |  | Std   |  | Add DF |  |
| Gasoline                     |  | 150,000 miles                      |  | HC-TOTAL-EQUIV               |  | --                  |  | 0.400 |  | 0      |  |
|                              |  |                                    |  |                              |  |                     |  |       |  |        |  |

## Certification Summary Information Report

| Test Group           |                                                                 | VKMXT02.5YP3       | Evaporative/Refueling Family                       | VKMXR0144JPG |
|----------------------|-----------------------------------------------------------------|--------------------|----------------------------------------------------|--------------|
| Glossary             |                                                                 |                    |                                                    |              |
| <b>Useful Life</b>   |                                                                 |                    |                                                    |              |
| 4                    | 4,000 miles                                                     | 120                | 120,000 miles                                      |              |
| 50                   | 50,000 miles                                                    | 150                | 150,000 miles                                      |              |
| 100                  | 100,000 miles                                                   |                    |                                                    |              |
| <b>Emission Name</b> |                                                                 |                    |                                                    |              |
| 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                             |                                                            | VKMXT02.5YP3 | Evaporative/Refueling Family |                                                 | VKMXR0144JPG |
|----------------------------------------|------------------------------------------------------------|--------------|------------------------------|-------------------------------------------------|--------------|
| 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                    |                                                                   | VKMXT02.5YP3 | Evaporative/Refueling Family                             |                            | VKMXR0144JPG |
|-------------------------------|-------------------------------------------------------------------|--------------|----------------------------------------------------------|----------------------------|--------------|
| 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                                  |                            |              |

Certification Summary Information Report

| Test Group                    |                                 | VKMXT02.5YP3 | Evaporative/Refueling Family |                                  | VKMXR0144JPG |
|-------------------------------|---------------------------------|--------------|------------------------------|----------------------------------|--------------|
| 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                     |              |