

TOYOTA

Application For Certification - Part 1 2027 Model Year

Durability Group : VTYXHHGNNB23
Evap/refueling Families : VTYXR0165J52
Test Group : VTYXT02.4H3L
Durability Group Description : Four Stroke, Otto Cycle, Gasoline Fueled,
Ported FI, Catalyst code : 3-Ilr7+3-Ilr8
Test Group Description : 2.4 Liter I4
LDT2 (RX 500h AWD)
LDT3 (GRAND HIGHLANDER HYBRID AWD,
TX 500h AWD)
Applicable Standards : Federal State: Interim Tier4 -Bin30-LDT2
California: See Federal
Carlines Covered : RX 500h AWD
GRAND HIGHLANDER HYBRID AWD
TX 500h AWD
Engine Series : T24A-FTS
Vehicles Tested :

Vehicle I.D.	Config.	Test	Test Number
25-TS1H	00	FTP	STYX10084058
25-TS1H	00	HWY	STYX10084060
25-TS1H	00	SFTP (US06)	STYX10084059
25-TS1H	00	SFTP (SC03)	STYX10084061
24-AS2H	00	EVAP	RTYX10078420, RTYX10078421
24-AS2H	00	Running Loss	RTYX10078422
20-AU1H	00	Refueling	LTYX10061147
25-TS1H	00	C.CO,C.HC	STYX10084057

EPA Response Requested By : September 11, 2026

For Questions, Contact : Lisa Florida 734-695-2697

Note :

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1. **Correspondence and Communications**

Please refer to the FOI common file.

2. **Durability Group Description**

Durability Group Name : VTYXHHGNNB23

Please refer to the common file for details.

3. **Evaporative/Refueling Family Description**

Evaporative/Refueling Family Name : VTYXR0165J52

Please refer to the FOI common file for details.

4. **Durability Procedure Description**

4.1 Exhaust Durability Test Procedure

4.2 Durability Showing

4.3 Evap/refueling Durability Test Procedure

Please refer to the CBI common file.

4.4 Exhaust Emission Deterioration Factors

4.5 Evap/refueling Emission Deterioration Factors

4.6 Equivalency Factor

Please refer to the Certification Summary Information Report in Section 7 or FOI common file.

5. Test Group Description

- | | | | |
|-----|--|---|---|
| 5.1 | Test group name | : | VTYXT02.4H3L |
| 5.2 | Engine displacements covered | : | 2,393 cm ³ (146.0 CID) |
| 5.3 | Arrangement and number of cylinders | : | I4 |
| 5.4 | Vehicle class (es) covered | : | LDT2(RX 500h)
LDT3(Grand Highlander Hybrid, TX 500h) |
| 5.5 | Federal emission standards class | : | Interim Tier4–Bin30-LDT2 |
| 5.6 | Applicable emission standards | | |
| | Please refer to Certification Summary Information Report in Section 7. | | |

6. Test Vehicle Description

DDV: Utilizing good engineering judgement that considered vehicle curb weight, road load coefficients, catalyst heat stress, we judged 25MY Grand Highlander Hybrid is the representative DDV in this Durability Group. Grand Highlander Hybrid was chosen as representative DDV because it has the same engine (T24A-FTS), same ECS, and the exact same catalyst specification.

EDV: Utilizing good engineering judgement that considered vehicle curb weight, road load coefficients, catalyst heat stress, we judged 25MY Grand Highlander Hybrid is the representative EDV in this Test Group. Grand Highlander Hybrid was chosen as representative EDV because it has the same engine (T24A-FTS), same ECS, and the exact same catalyst specification.

Certification Summary Information Report

Manufacturer	Toyota Motor Corporation	Manufacturer Code	TYX
Test Group	VTYXT02.4H3L	Evaporative/Refueling Family	VTYXR0165J52
Certificate Number	--	CARB Executive Order #	--
Certificate Issue Date	--	Certificate Revision Date	--
Certificate Effective Date	--	Conditional Certificate	--
CSI Revision #	--	CSI Submission/Revision Date	07/12/2026 07:24:01 PM
Model Year	2027		

Certification Summary Information Report

Test Group	VTYXT02.4H3L	Evaporative/Refueling Family	VTYXR0165J52						
Test Group Information									
CSI Type	New	Running Change Reference Number	--						
GHG Exempt Status	Not Exempt								
Drive Sources and Fuel(s)									
Drive Source #1:	Electric Motor								
	<table border="1"> <tr> <th>Fuel</th><th>Basic Fuel Metering System</th><th>Lean Burn Strategy Indicator</th></tr> <tr> <td>Electricity</td><td>--</td><td>No</td></tr> </table>	Fuel	Basic Fuel Metering System	Lean Burn Strategy Indicator	Electricity	--	No		
Fuel	Basic Fuel Metering System	Lean Burn Strategy Indicator							
Electricity	--	No							
Drive Source #2:	Combustion Engine								
	<table border="1"> <tr> <th>Fuel</th><th>Basic Fuel Metering System</th><th>Lean Burn Strategy Indicator</th></tr> <tr> <td>Gasoline</td><td>Spark Ignition direct & ported injection</td><td>No</td></tr> </table>	Fuel	Basic Fuel Metering System	Lean Burn Strategy Indicator	Gasoline	Spark Ignition direct & ported injection	No		
Fuel	Basic Fuel Metering System	Lean Burn Strategy Indicator							
Gasoline	Spark Ignition direct & ported injection	No							
Hybrid Indicator	Yes								
Multiple Fuel Storage	--	Rechargeable Energy Storage System Indicator	Yes						
Multiple Fuel Combustion	--	Off-board Charge Capable Indicator	No						
Fuel Cell Indicator	No	EPA Vehicle Class	LDT2, LDT3						
Federal Clean Fuel Vehicle	No	Federal Clean Fuel Vehicle Standard	--						
Federal Clean Fuel Vehicle ILEV	No	California Partial Zero Emissions Vehicle Indicator	No						
Durability Group Name	VTYXHHGNNB23	Durability Group Equivalency Factor	1.1						
Reduced Fee Test Group	No	Certification Region Code(s)	FA, CA						
Complies with HD GHG 2b/3 regulations?	No								
Introduction into Commerce Date	--	CAP2000 Conditional Certificate?	N/A						
Independent Commercial Importer?	--	Alternative Fuel Converter Certificate?	--						
SFTP Federal Composite Compliance Identifier	Tier 3	SFTP Tier 2 Composite CO Option	No						
SFTP LEV-III Composite Compliance Indicator	Yes								
OBD Compliance Type	CARB	OBD Demonstration Vehicle Test Group	VTYXT02.4H3A						
Test Group OBD Compliance Level	Full - no deficiencies	Number of Test Group OBD Deficiencies	0						
OBD Deficiencies Comments	--								
Mfr Test Group Comments	--								
Mfr Exhaust / Evap Standards Comments	--								

Certification Summary Information Report

Test Group	VTYXT02.4H3L	Evaporative/Refueling Family	VTYXR0165J52				
Evaporative/Refueling Family Information							
Evaporative Summary Information Type	New	Submission/Correction Date	07/07/2026 08:29:45 AM				
Integrated ORVR?	No	Fuel(s)	Gasoline, Electricity				
Multiple Fuel Storage	Fuels Stored Together						
Bladder Fuel Tank?	No						
Fuel Tank Material	Plastic	Fuel Tank Material Description	EVOH				
Fill Pipe Seal Type	Liquid seal						
Air Intake System Vapor Storage Device?	No	Air Intake System Vapor Storage Device Description	--				
Fuel System Vapor Storage Canister?	Yes	Other Vapor Storage	--				
Fuel System Vapor Storage Canister(s) Total Working Capacity (grams)	165	Number of Primary Canisters	1				
Number of Bleed Canisters	0	Bleed Canister Total Working Capacity (grams)	--				
Mfr Evaporative/Refueling Family Comments	--						
Leak Family Details							
Leak Family Indicator	No						
Canister Bleed Test Indicator	No	Applicability of Evaporative Canister Bleed Test	--				
Evaporative Canister Bleed Test Comments	--						
CARB Fuel Only (Rig) Test Indicator	No	Applicability of CARB Fuel Only (Rig) Test	--				
CARB Fuel Only (Rig) Test Comments	--						
Models Covered by this Certificate							
Carline Manufacturer	Division	Carline	Certification Region Code(s)	Drive System	Trans - Type	- # of Gears	Trans - Lockup
Toyota Motor Corporation	2 - LEXUS	95 - TX 500h AWD	California + CAA Section 177 states	All Wheel Drive	Semi-Automatic	6	No
Toyota Motor Corporation	2 - LEXUS	95 - TX 500h AWD	Federal	All Wheel Drive	Semi-Automatic	6	No
Toyota Motor Corporation	1 - TOYOTA	232 - GRAND HIGHLANDER HYBRID AWD	Federal	All Wheel Drive	Semi-Automatic	6	No
Toyota Motor Corporation	2 - LEXUS	157 - RX 500h AWD	California + CAA Section 177 states	All Wheel Drive	Semi-Automatic	6	No
Toyota Motor Corporation	1 - TOYOTA	232 - GRAND HIGHLANDER HYBRID AWD	California + CAA Section 177 states	All Wheel Drive	Semi-Automatic	6	No
Toyota Motor Corporation	2 - LEXUS	157 - RX 500h AWD	Federal	All Wheel Drive	Semi-Automatic	6	No

Certification Summary Information Report

Test Group	VTYXT02.4H3L	Evaporative/Refueling Family	VTYXR0165J52	
Engine Description				
Hybrid Type	IC Engine/Electric Motor	Hybrid Description	--	
Engine Type	4-Stroke Spark Ignition	Mfr Engine Description	--	
Engine Block Arrangement	Inline	Mfr Engine Block Arrangement Description	--	
Camless Valvetrain Indicator	No	Oil Viscosity/Classification	0W-20	
Number of Cylinders/Rotors	4	Mechanically Variable Compression Ratio Indicator	N	
After Treatment Device(s) (ATD)				
ATD Number	ATD Type	ATD Precious Metal	Substrate Material	Substrate Construction
1	Three-way catalyst	Palladium + Rhodium	Ceramic	Monolith
2	Three-way catalyst	Platinum + Rhodium	Ceramic	Monolith
Mfr After Treatment Device (ATD) Comments				
--				
Direct Ozone Reduction (DOR) Device				
Not Equipped				
Mfr Emission Control Device Comments				
--				
Engine Configuration Number 1				
Engine Displacement (liters)	2.4	Engine Rated Horsepower	265	
Number of Inlet Valves Per Cylinder	2	Number of Exhaust Valves Per Cylinder	2	
Air Aspiration Method	Turbocharged	Number of Air Aspiration Devices	1	
Air Aspiration Device Configuration	Single	Charge Air Cooler Type	Liquid	
Air Aspiration Drive Method(s)	Mechanical			
Cylinder Deactivation	No			
Cylinder Deactivation Description	--			
Variable Valve Timing	Yes			
Variable Valve Timing System Description	Intake and exhaust			
Variable Valve Lift?	No			
Variable Valve Lift System Description	--			
Number of Knock Sensors	1	Number of Air/Fuel Sensors	2	
Air/Fuel Sensor # 1 Type	Heated air fuel	Air/Fuel Sensor # 1 Description	--	
Air/Fuel Sensor # 2 Type	Heated air fuel	Air/Fuel Sensor # 2 Description	--	
Mfr Air/Fuel Sensor Comments	--			
Exhaust Gas Recirculation	No	Cooled Exhaust Gas Recirculation	No	
EGR Type	--	Exhaust Gas Recirculation Description if 'Other'	--	
Closed Loop Air Injection System	No			
Air Injection Type	Not Applicable	Air Injection Type if 'Other'	--	
Mfr Engine Configuration Comments	APPLIED TO GRAND HIGHLANDER HYBRID			

Certification Summary Information Report

Test Group	VTYXT02.4H3L	Evaporative/Refueling Family	VTYXR0165J52								
Engine Configuration Number 2											
Engine Displacement (liters)	2.4	Engine Rated Horsepower	271								
Number of Inlet Valves Per Cylinder	2	Number of Exhaust Valves Per Cylinder	2								
Air Aspiration Method	Turbocharged	Number of Air Aspiration Devices	1								
Air Aspiration Device Configuration	Single	Charge Air Cooler Type	Liquid								
Air Aspiration Drive Method(s)	Mechanical										
Cylinder Deactivation	No										
Cylinder Deactivation Description	--										
Variable Valve Timing	Yes										
Variable Valve Timing System Description	Intake and exhaust										
Variable Valve Lift?	No										
Variable Valve Lift System Description	--										
Number of Knock Sensors	1	Number of Air/Fuel Sensors	2								
Air/Fuel Sensor # 1 Type	Heated air fuel	Air/Fuel Sensor # 1 Description	--								
Air/Fuel Sensor # 2 Type	Heated air fuel	Air/Fuel Sensor # 2 Description	--								
Mfr Air/Fuel Sensor Comments	--										
Exhaust Gas Recirculation	No	Cooled Exhaust Gas Recirculation	No								
EGR Type	--	Exhaust Gas Recirculation Description if 'Other'	--								
Closed Loop Air Injection System	No										
Air Injection Type	Not Applicable	Air Injection Type if 'Other'	--								
Mfr Engine Configuration Comments	APPLIED TO TX 500h, RX 500h										
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	STYX10084058	STYX10084059	STYX10084061	STYX10084057	STYX10084060	999.9	228.2	999.9	286.1	--	
Electricity	STYX10084058	STYX10084059	STYX10084061	STYX10084057	STYX10084060	--	--	--	--	--	
SFTP LEV-III Official Test Numbers											
Test Group	Fuel	FTP	US06	SC03							
Electricity	STYX10084058	STYX10084059	STYX10084061								
Gasoline	STYX10084058	STYX10084059	STYX10084061								

Certification Summary Information Report

Test Group	VTYXT02.4H3L	Evaporative/Refueling Family	VTYXR0165J52
Hybrid Electric Vehicle And Fuel Cell Information			
Rechargeable Energy Storage System	Battery(s)	Rechargeable Energy Storage System, if Other	--
Battery Type	NiMH	Number of Battery Packs	1
Total Voltage of Battery Packs	288	Battery Energy Capacity	5
Battery Specific Energy	23	Battery Charger Type	On-Board
Number of Capacitors	--	Capacitor Rating (In Farads)	--
Mfr Capacitor Comments	--		
Hydraulic System Description	--		
Regenerative Braking Type	Electrical Regen Brake		
Regenerative Braking Source	Both	Driver Controlled Regenerative Braking	No
Mfr Regenerative Braking Description	--		
Drive Motor(s)/Generator(s)	2		
Motor/Generator Type 1	AC Synchronous	Rated Motor/Generator Power	76
Motor/Generator Type 2	AC Synchronous	Rated Motor/Generator Power	64
Mfr Fuel Cell Description	--		
Fuel Cell On-Board H2 Storage Capacity (kg)	--	Usable H2 Fill Capacity (kg)	--
Mfr Hybrid Electric/ Electric Vehicle Comments	--		

Certification Summary Information Report

Test Group	VTYXT02.4H3L	Evaporative/Refueling Family	VTYXR0165J52									
Emission Data Vehicle Information												
Vehicle ID / Configuration	20-AU1H / 0	Manufacturer Vehicle Configuration Number	0									
Original Test Group Name	LTYXT02.5P34	Original Evaporative/Refueling Family	LTYXR0165J82									
Original Test Vehicle Model Year	2020											
Vehicle Model												
Represented Test Vehicle Make	TOYOTA	Represented Test Vehicle Model	HIGHLANDER HYBRID AWD LTD/PLAT									
Leak Family Details												
Leak Family Identifier	--	Leak Family Name	--									
Drive Sources and Fuel System Details												
	<table border="1"> <thead> <tr> <th>Drive Source and Fuel#</th><th>Drive Source</th><th>Fuel</th></tr> </thead> <tbody> <tr> <td>1</td><td>Combustion Engine</td><td>Gasoline</td></tr> <tr> <td>2</td><td>Electric Motor</td><td>Electricity</td></tr> </tbody> </table>	Drive Source and Fuel#	Drive Source	Fuel	1	Combustion Engine	Gasoline	2	Electric Motor	Electricity		
Drive Source and Fuel#	Drive Source	Fuel										
1	Combustion Engine	Gasoline										
2	Electric Motor	Electricity										
Hybrid Indicator	Yes											
Multiple Fuel Storage	--	Multiple Fuel Combustion	--									
Fuel Cell Indicator	No	Rechargeable Energy Storage System Indicator	Yes									
Rechargeable Energy Storage System	Battery(s)	Rechargeable Energy Storage System, if 'Other'	--									
Off-board charge Capable Indicator	No											
Odometer Correction -- Initial	29	Odometer Correction Factor	1									
Odometer Correction Sign	- = System Miles is equal to (Test odometer reading - Initial system miles) * Correction factor											
Odometer Correction Units	Miles											
Engine Code	01	Rated Horsepower	186									
Displacement (liters)	2.487											
Air Aspiration Method	Naturally Aspirated	Air Aspiration Method, if 'Other'										
Number of Air Aspiration Devices	--	Air Aspiration Device Configuration	--									
Charge Air Cooler Type	N/A	Drive Mode While Testing	2-Wheel Drive, Front									
Shift Indicator Light Usage	Not equipped	Aged Emission Components	4,000 (mi)									
Curb Weight (lbs)	4595	Equivalent Test Weight (pounds)	5000									
GVWR (lbs)	6065	N/V Ratio	22.4									
Axle Ratio	3.64											
Transmission Type	Continuously Variable	# of Transmission Gears	1									
Transmission Lockup	No	Creep Gear	No									

Certification Summary Information Report

Test Group	VTYXT02.4H3L	Evaporative/Refueling Family	VTYXR0165J52
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Dynamometer Coefficients:

Coefficient Category	Target Coefficients			Set Coefficients			EPA Calculated Total Road Load Horse Power for City/Highway/Evap Coefficients
	A (lbf)	B (lbf/mph)	C (lbf/mph**2)	A (lbf)	B (lbf/mph)	C (lbf/mph**2)	
City/Highway/Evap	40.829	0.21956	0.025369	25.284	0.08413	0.025532	15.4
Cold CO	44.912	0.24151	0.027906	21.298	0.01124	0.028196	N/A
US06	40.829	0.21956	0.025369	25.284	0.08413	0.025532	N/A

Emission Control Device Comments --

Manufacturer Test Vehicle Comments T/M MODE IS SPORT

Test #	LTYX10061147	Test Procedure	24 - Federal fuel refueling test (ORVR)
Exhaust Test # for this Evap Test	LTYX10061109	Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)
Test Date	08/22/2019	Fuel	Gasoline
Fuel Batch ID	1F9-04	Fuel Calibration Number	1
Vehicle Class	N/A	DF Type	Mfr. Determined
Verify Test Lab ID	Toyota Motor Corporation		
E10 Evaporative Test Measurement Method	Calculated (1.08 x FID Total Hydrocarbons)		
Test Start Odometer Reading	4394	Odometer Units	M
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)	0.0027622	--

Manufacturer Test Comments --

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	0.003	0.000	0.00	0.20	Pass
CA	150,000 miles	California LEV-IV Zero Evap (Option 2)	HC-TOTAL-EQUIV	0.003	0.000	0.00	0.20	Pass

Certification Summary Information Report

Test Group	VTYXT02.4H3L	Evaporative/Refueling Family	VTYXR0165J52
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Emission Data Vehicle Information

Vehicle ID / Configuration	24-AS2H / 0	Manufacturer Vehicle Configuration Number	0
Original Test Group Name	RTYXT02.5P34	Original Evaporative/Refueling Family	RTYXR0165J82
Original Test Vehicle Model Year	2024		

Vehicle Model

Represented Test Vehicle Make	TOYOTA	Represented Test Vehicle Model	GRAND HIGHLANDER HYBRID
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Leak Family Details

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

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

Hybrid Indicator	Yes		
Multiple Fuel Storage	--	Multiple Fuel Combustion	--
Fuel Cell Indicator	No	Rechargeable Energy Storage System Indicator	Yes
Rechargeable Energy Storage System	Battery(s)	Rechargeable Energy Storage System, if 'Other'	--
Off-board charge Capable Indicator	No		
Odometer Correction -- Initial	8	Odometer Correction Factor	1
Odometer Correction Sign	- = System Miles is equal to (Test odometer reading - Initial system miles) * Correction factor		
Odometer Correction Units	Miles		
Engine Code	08	Rated Horsepower	187
Displacement (liters)	2.487		
Air Aspiration Method	Naturally Aspirated	Air Aspiration Method, if 'Other'	
Number of Air Aspiration Devices	--	Air Aspiration Device Configuration	--
Charge Air Cooler Type	N/A	Drive Mode While Testing	2-Wheel Drive, Front
Shift Indicator Light Usage	Not equipped	Aged Emission Components	4,000 (mi)
Curb Weight (lbs)	4475	Equivalent Test Weight (pounds)	4750
GVWR (lbs)	6030	N/V Ratio	22.8
Axle Ratio	3.64		
Transmission Type	Continuously Variable	# of Transmission Gears	1
Transmission Lockup	No	Creep Gear	No

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Certification Summary Information Report

Test Group	VTYXT02.4H3L	Evaporative/Refueling Family	VTYXR0165J52
Test #	RTYX10078420	Test Procedure	23 - 2-day evap
Exhaust Test # for this Evap Test	RTYX10078383	Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)
Test Date	11/30/2022	Fuel	Gasoline
Fuel Batch ID	2F2A12	Fuel Calibration Number	6
Vehicle Class	N/A	DF Type	Mfr. Determined
Verify Test Lab ID	Toyota Motor Corporation		
E10 Evaporative Test Measurement Method	Calculated (1.08 x FID Total Hydrocarbons)		
Test Start Odometer Reading	3850	Odometer Units	M
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
CO2 BAG 1 (Bag 1 Carbon Dioxide)	0	--
FE BAG 1 (Bag 1 Fuel Economy)	999	999
CO2 BAG 2 (Bag 2 Carbon Dioxide)	0	--
FE BAG 2 (Bag 2 Fuel Economy)	999	999
CO2 BAG 3 (Bag 3 Carbon Dioxide)	0	--
FE BAG 3 (Bag 3 Fuel Economy)	999	999
MFR FE (Manufacturer Fuel Economy)	999	999
HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)	0.1922	--

Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE
Carbon-Related Exhaust Emissions	0	--

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	0	--

Manufacturer Test Comments HSL=0.0181, 1ST DBL=0.1741, 2ND DBL=0.1354, 1ST DBL IS ADDED KEY OFF MONITOR LOSS(0.0002GRAM)

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	0.1922	0.0000	0.192	0.400	Pass
CA	150,000 miles	California LEV-IV Zero Evap (Option 2)	HC-TOTAL-EQUIV	0.1922	0.0000	0.192	0.400	Pass

Certification Summary Information Report

Test Group	VTYXT02.4H3L	Evaporative/Refueling Family	VTYXR0165J52
Test #	RTYX10078421	Test Procedure	34 - Federal fuel 3-day evap
Exhaust Test # for this Evap Test	RTYX10078382	Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)
Test Date	12/07/2022	Fuel	Gasoline
Fuel Batch ID	2F2A12	Fuel Calibration Number	7
Vehicle Class	N/A	DF Type	Mfr. Determined
Verify Test Lab ID	Toyota Motor Corporation		
E10 Evaporative Test Measurement Method	Calculated (1.08 x FID Total Hydrocarbons)		
Test Start Odometer Reading	3889	Odometer Units	M
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
CO2 BAG 1 (Bag 1 Carbon Dioxide)	0	--
FE BAG 1 (Bag 1 Fuel Economy)	999	999
CO2 BAG 2 (Bag 2 Carbon Dioxide)	0	--
FE BAG 2 (Bag 2 Fuel Economy)	999	999
CO2 BAG 3 (Bag 3 Carbon Dioxide)	0	--
FE BAG 3 (Bag 3 Fuel Economy)	999	999
MFR FE (Manufacturer Fuel Economy)	999	999
HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)	0.1858	--

Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE
Carbon-Related Exhaust Emissions	0	--

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	0	--

Manufacturer Test Comments HSL=0.0335, 1ST DBL=0.1523, 2ND DBL=0.1225, 3RD DBL=0.1148, 1ST DBL IS ADDED KEY OFF MONITOR LOSS(0.0002GRAM)

Certification Region	Useful Life	Standard Level	Emission Name	Rounded Result	Add DF	Certification Level	Standard	Pass/Fail
Fed	150,000 miles	Federal Tier 3 Evap	HC-TOTAL-EQUIV	0.1858	0.0000	0.186	0.400	Pass
CA	150,000 miles	California LEV-IV Zero Evap (Option 2)	HC-TOTAL-EQUIV	0.1858	0.0000	0.186	0.400	Pass

Certification Summary Information Report

Test Group	VTYXT02.4H3L	Evaporative/Refueling Family	VTYXR0165J52
Test #	RTYX10078422	Test Procedure	32 - Federal Fuel Running Loss
Exhaust Test # for this Evap Test	RTYX10078382	Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)
Test Date	12/07/2022	Fuel	Gasoline
Fuel Batch ID	2F2A12	Fuel Calibration Number	7
Vehicle Class	N/A	DF Type	Mfr. Determined
Verify Test Lab ID	Toyota Motor Corporation		
E10 Evaporative Test Measurement Method	Calculated (1.08 x FID Total Hydrocarbons)		
Test Start Odometer Reading	3889	Odometer Units	M
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
CO2 BAG 1 (Bag 1 Carbon Dioxide)	0	--
CO BAG 1 (Bag 1 Carbon Monoxide)	0	--
FE BAG 1 (Bag 1 Fuel Economy)	999	999
CH4 BAG 1 (Bag 1 Methane)	0	--
NMOG BAG 1 (Bag 1 Non-methane organic gases)	0	--
CO2 BAG 2 (Bag 2 Carbon Dioxide)	0	--
CO BAG 2 (Bag 2 Carbon Monoxide)	0	--
FE BAG 2 (Bag 2 Fuel Economy)	999	999
CH4 BAG 2 (Bag 2 Methane)	0	--
NMOG BAG 2 (Bag 2 Non-methane organic gases)	0	--
CO2 BAG 3 (Bag 3 Carbon Dioxide)	0	--
CO BAG 3 (Bag 3 Carbon Monoxide)	0	--
FE BAG 3 (Bag 3 Fuel Economy)	999	999
CH4 BAG 3 (Bag 3 Methane)	0	--
NMOG BAG 3 (Bag 3 Non-methane organic gases)	0	--
MFR FE (Manufacturer Fuel Economy)	999	999
HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)	0.0000012	--

Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE
Carbon-Related Exhaust Emissions	0	--

Certification Summary Information Report

Test Group		VTYXT02.4H3L		Evaporative/Refueling Family		VTYXR0165J52		
		Test Result Name		Unrounded Test Result		Verify Calculated CO2		
		Carbon dioxide		0		--		
Manufacturer Test Comments		--						
Certification Region	Useful Life	Standard Level	Emission Name	Rounded Result	Add DF	Certification Level	Standard	Pass/Fail
Fed	150,000 miles	Federal Tier 3 Evap	HC-TOTAL-EQUIV	0.000	0.000	0.00	0.05	Pass
CA	150,000 miles	California LEV-IV Zero Evap (Option 2)	HC-TOTAL-EQUIV	0.000	0.000	0.00	0.01	Pass

Certification Summary Information Report

Test Group	VTYXT02.4H3L	Evaporative/Refueling Family	VTYXR0165J52									
Emission Data Vehicle Information												
Vehicle ID / Configuration	25-TS1H / 0	Manufacturer Vehicle Configuration Number	0									
Original Test Group Name	STYXT02.4H3L	Original Evaporative/Refueling Family	STYXR0165J82									
Original Test Vehicle Model Year	2025											
Vehicle Model												
Represented Test Vehicle Make	TOYOTA	Represented Test Vehicle Model	GRAND HIGHLANDER HYBRID AWD									
Leak Family Details												
Leak Family Identifier	--	Leak Family Name	--									
Drive Sources and Fuel System Details												
<table border="1"> <thead> <tr> <th>Drive Source and Fuel#</th><th>Drive Source</th><th>Fuel</th></tr> </thead> <tbody> <tr> <td>1</td><td>Combustion Engine</td><td>Gasoline</td></tr> <tr> <td>2</td><td>Electric Motor</td><td>Electricity</td></tr> </tbody> </table>				Drive Source and Fuel#	Drive Source	Fuel	1	Combustion Engine	Gasoline	2	Electric Motor	Electricity
Drive Source and Fuel#	Drive Source	Fuel										
1	Combustion Engine	Gasoline										
2	Electric Motor	Electricity										
Hybrid Indicator	Yes											
Multiple Fuel Storage	--	Multiple Fuel Combustion	--									
Fuel Cell Indicator	No	Rechargeable Energy Storage System Indicator	Yes									
Rechargeable Energy Storage System	Battery(s)	Rechargeable Energy Storage System, if 'Other'	--									
Off-board charge Capable Indicator	No											
Odometer Correction -- Initial	8	Odometer Correction Factor	1									
Odometer Correction Sign	- = System Miles is equal to (Test odometer reading - Initial system miles) * Correction factor											
Odometer Correction Units	Miles											
Engine Code	01	Rated Horsepower	265									
Displacement (liters)	2.393											
Air Aspiration Method	Turbocharged	Air Aspiration Method, if 'Other'										
Number of Air Aspiration Devices	1	Air Aspiration Device Configuration	Single									
Charge Air Cooler Type	Liquid	Drive Mode While Testing	2-Wheel Drive, Front									
Shift Indicator Light Usage	Not equipped	Aged Emission Components	4,000 (mi)									
Curb Weight (lbs)	4920	Equivalent Test Weight (pounds)	5250									
GVWR (lbs)	6340	N/V Ratio	28.4									
Axle Ratio	3.74											
Transmission Type	Automatic	# of Transmission Gears	6									
Transmission Lockup	Yes	Creep Gear	No									

Certification Summary Information Report

Test Group		VTYXT02.4H3L			Evaporative/Refueling Family		VTYXR0165J52	
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	36.263	0.45525	0.024589	17.542	0.20269	0.026516	16.1	
Cold CO	39.89	0.50078	0.027048	17.023	0.21199	0.028592	N/A	
US06	36.263	0.45525	0.024589	17.542	0.20269	0.026516	N/A	
Emission Control Device Comments		--						
Manufacturer Test Vehicle Comments		Drive mode is SPORT.						

Certification Summary Information Report

Test Group	VTYXT02.4H3L	Evaporative/Refueling Family	VTYXR0165J52
Test #	STYX10084057	Test Procedure	11 - Cold CO
Exhaust Test # for this Evap Test	--	Test Fuel Type	28 - Cold CO E10 Regular Gasoline (Tier 3)
Test Date	10/31/2023	Fuel	Gasoline
Fuel Batch ID	2L2A02	Fuel Calibration Number	11
Vehicle Class	LDT2 (LVW 3751-5750, GVW 0-6000)	DF Type	Mfr. Determined
Verify Test Lab ID	Toyota Motor Corporation		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4544	Odometer Units	M
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
CO2 BAG 1 (Bag 1 Carbon Dioxide)	0	--
FE BAG 1 (Bag 1 Fuel Economy)	999	999
CO2 BAG 2 (Bag 2 Carbon Dioxide)	0	--
FE BAG 2 (Bag 2 Fuel Economy)	999	999
CO2 BAG 3 (Bag 3 Carbon Dioxide)	0	--
FE BAG 3 (Bag 3 Fuel Economy)	999	999
CO2 BAG 4 (Bag 4 Carbon Dioxide)	0	--
METHANE (CH4 - Methane)	0.011983	--
CO (Carbon Monoxide)	0.3993012	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	0.81	--
DT-EER (Drive Trace Energy Economy Rating)	0.42	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	1.11	--
MFR FE (Manufacturer Fuel Economy)	999	999
NOX (Nitrogen Oxide)	0.0036	--
N2O (Nitrous Oxide)	0.0138883	--
HC-NM (Non-methane Hydrocarbon)	0.0623253	--
HC-TOTAL (Total Hydrocarbon)	0.0738923	--

Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE
Carbon-Related Exhaust Emissions	0	--

Certification Summary Information Report

Test Group		VTYXT02.4H3L				Evaporative/Refueling Family				VTYXR0165J52		
		Test Result Name		Unrounded Test Result			Verify Calculated CO2					
		Carbon dioxide		0			--					
Manufacturer Test Comments		--										
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	0.40	--	--	--	0.01	--	0.4	12.5	Pass
Fed	120,000 miles	Federal Tier 3 Bin 30	HC-NM	0.06	--	--	--	0.01	--	0.1	0.3	Pass
CA	50,000 miles	California LEV-IV SULEV30	CO	0.40	--	--	--	0.01	--	0.4	12.5	Pass

Certification Summary Information Report

Test Group	VTYXT02.4H3L	Evaporative/Refueling Family	VTYXR0165J52
Test #	STYX10084058	Test Procedure	21 - Federal fuel 2-day exhaust (w/can load)
Exhaust Test # for this Evap Test	--	Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)
Test Date	12/15/2023	Fuel	Gasoline
Fuel Batch ID	2D3A01	Fuel Calibration Number	5
Vehicle Class	LDT2 (LVW 3751-5750, GVW 0-6000)	DF Type	Mfr. Determined
Verify Test Lab ID	Toyota Motor Corporation		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4588	Odometer Units	M
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
CO2 BAG 1 (Bag 1 Carbon Dioxide)	0	--
FE BAG 1 (Bag 1 Fuel Economy)	999	999
CO2 BAG 2 (Bag 2 Carbon Dioxide)	0	--
FE BAG 2 (Bag 2 Fuel Economy)	999	999
CO2 BAG 3 (Bag 3 Carbon Dioxide)	0	--
FE BAG 3 (Bag 3 Fuel Economy)	999	999
CO2 BAG 4 (Bag 4 Carbon Dioxide)	0	--
FE BAG 4 (Bag 4 Fuel Economy)	999	999
METHANE (CH4 - Methane)	0.0034816	--
CO (Carbon Monoxide)	0.1590563	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	0.03	--
DT-EER (Drive Trace Energy Economy Rating)	0	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	-0.03	--
MFR FE (Manufacturer Fuel Economy)	999	999
NOX (Nitrogen Oxide)	0.0027537	--
N2O (Nitrous Oxide)	0.0001244	--
HC-NM (Non-methane Hydrocarbon)	0.0049158	--
NMOG (Non-methane organic gases)	0.0054133	--
PM (Particulate Matter)	0.0001162	--
HC-TOTAL (Total Hydrocarbon)	0.0075187	--

Certification Summary Information Report

Test Group		VTYXT02.4H3L			Evaporative/Refueling Family				VTYXR0165J52			
		Test Result Name		Unrounded Test Result		Verify Calculated CREE/OPT-CREE						
		Carbon-Related Exhaust Emissions		0		999						
		Test Result Name		Unrounded Test Result		Verify Calculated CO2						
		Carbon dioxide		0		--						
Manufacturer Test Comments		NMOG = HC-NM x 1.1012										
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	0.16	--	--	--	0.02	--	0.2	1.0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	CO-COMP	0.20	--	--	--	0.02	--	0.2	4.2	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	CREE	999	--	--	--	0.057	--	999	--	--
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG	0.0054	1	1.10	--	0.0038	--	0.009	999.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG+NOX	0.0082	1	1.10	--	--	--	0.014	0.030	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG+NOX-COMP	0.0138	1	1.03	--	0.0059	--	0.014	0.040	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NOX	0.0028	--	--	--	0.0021	--	0.005	999.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	PM	0.0001	--	--	--	0.0000	--	0.000	0.003	Pass
CA	150,000 miles	California LEV-IV SULEV30	CO	0.16	--	--	--	0.02	--	0.2	1.0	Pass
CA	150,000 miles	California LEV-IV SULEV30	METHANE	0.0035	--	--	--	0.0063	--	0.010	0.030	Pass
CA	150,000 miles	California LEV-IV SULEV30	N2O	0.0001	--	--	--	0.0009	--	0.001	0.010	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG	0.0054	1	1.10	--	0.0038	--	0.009	999.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG+NOX	0.0082	1	1.10	--	--	--	0.014	0.030	Pass
CA	150,000 miles	California LEV-IV SULEV30	NOX	0.0028	--	--	--	0.0021	--	0.005	999.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	PM	0.0001	--	--	--	0.0000	--	0.000	0.001	Pass
NOTE: For Non-charge depleting tests, the Rounded Result for CREE/OPT-CREE Emission names are Verify-calculated values.												

Certification Summary Information Report

Test Group	VTYXT02.4H3L	Evaporative/Refueling Family	VTYXR0165J52
Test #	STYX10084060	Test Procedure	3 - HWFE
Exhaust Test # for this Evap Test	--	Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)
Test Date	12/15/2023	Fuel	Gasoline
Fuel Batch ID	2D3A01	Fuel Calibration Number	5
Vehicle Class	LDT2 (LVW 3751-5750, GVW 0-6000)	DF Type	Mfr. Determined
Verify Test Lab ID	Toyota Motor Corporation		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4603	Odometer Units	M
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
METHANE (CH4 - Methane)	0.0003955	--
CO (Carbon Monoxide)	0.0588006	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	0.61	--
DT-EER (Drive Trace Energy Economy Rating)	-0.07	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	0.73	--
MFR FE (Manufacturer Fuel Economy)	999	999
NOX (Nitrogen Oxide)	0.0004939	--
N2O (Nitrous Oxide)	0	--
HC-NM (Non-methane Hydrocarbon)	0	--
NMOG (Non-methane organic gases)	0	--
HC-TOTAL (Total Hydrocarbon)	0	--

Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE
Carbon-Related Exhaust Emissions	0	999

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	0	--

Manufacturer Test Comments NMOG = HC-NM x 1.03

Certification Summary Information Report

Test Group		VTYXT02.4H3L				Evaporative/Refueling Family				VTYXR0165J52		
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	CREE	999	--	--	--	0.057	--	999	--	--
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG	0.0000	1	1.03	--	0.0038	--	0.004	999.999	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NMOG+NOX	0.0005	1	1.03	--	--	--	0.006	0.030	Pass
Fed	150,000 miles	Federal Tier 3 Bin 30	NOX	0.0005	--	--	--	0.0021	--	0.003	999.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG	0.0000	1	1.03	--	0.0038	--	0.004	999.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG+NOX	0.0005	1	1.03	--	--	--	0.006	0.030	Pass
CA	150,000 miles	California LEV-IV SULEV30	NOX	0.0005	--	--	--	0.0021	--	0.003	999.999	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	VTYXT02.4H3L	Evaporative/Refueling Family	VTYXR0165J52
Test #	STYX10084059	Test Procedure	90 - US06
Exhaust Test # for this Evap Test	--	Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)
Test Date	12/15/2023	Fuel	Gasoline
Fuel Batch ID	2D3A01	Fuel Calibration Number	5
Vehicle Class	LDT2 (LVW 3751-5750, GVW 0-6000)	DF Type	Mfr. Determined
Verify Test Lab ID	Toyota Motor Corporation		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4624	Odometer Units	M
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	Road Speed Fan Usage	Yes
Test Results			
Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)	
CO2 BAG 1 (Bag 1 Carbon Dioxide)	0	--	
FE BAG 1 (Bag 1 Fuel Economy)	999	999	
CO2 BAG 2 (Bag 2 Carbon Dioxide)	0	--	
FE BAG 2 (Bag 2 Fuel Economy)	999	999	
METHANE (CH4 - Methane)	0.0031151	--	
CO (Carbon Monoxide)	0.273903	--	
DT-ASCR (Drive Trace Absolute Speed Change Rating)	-0.61	--	
DT-EER (Drive Trace Energy Economy Rating)	-0.12	--	
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	-1.34	--	
MFR FE (Manufacturer Fuel Economy)	999	999	
NOX (Nitrogen Oxide)	0.0074172	--	
N2O (Nitrous Oxide)	0.0014004	--	
HC-NM (Non-methane Hydrocarbon)	0.005965	--	
NMOG (Non-methane organic gases)	0.0061439	--	
PM (Particulate Matter)	0.0013653	--	
HC-TOTAL (Total Hydrocarbon)	0.0088402	--	
Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE	
Carbon-Related Exhaust Emissions	0	--	
Test Result Name	Unrounded Test Result	Verify Calculated CO2	
Carbon dioxide	0	--	

Certification Summary Information Report

Test Group		VTYXT02.4H3L				Evaporative/Refueling Family				VTYXR0165J52		
Manufacturer Test Comments		NMOG = HC-NM x 1.03										
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	PM	0.0014	--	--	--	0.0000	--	0.001	0.006	Pass
CA	150,000 miles	California LEV-IV SULEV30	CO	0.27	--	--	--	0.02	--	0.3	9.6	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG	0.0061	--	--	--	0.0038	--	0.010	999.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG+NOX	0.0135	--	--	--	--	--	0.019	0.036	Pass
CA	150,000 miles	California LEV-IV SULEV30	NOX	0.0074	--	--	--	0.0021	--	0.010	999.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	PM	0.0014	--	--	--	0.0000	--	0.001	0.006	Pass

Certification Summary Information Report

Test Group	VTYXT02.4H3L	Evaporative/Refueling Family	VTYXR0165J52
Test #	STYX10084061	Test Procedure	95 - SC03
Exhaust Test # for this Evap Test	--	Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)
Test Date	10/25/2023	Fuel	Gasoline
Fuel Batch ID	2D3A01	Fuel Calibration Number	3
Vehicle Class	LDT2 (LVW 3751-5750, GVW 0-6000)	DF Type	Mfr. Determined
Verify Test Lab ID	Toyota Motor Corporation		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4509	Odometer Units	M
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	Road Speed Fan Usage	Yes

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
METHANE (CH4 - Methane)	0.0016608	--
CO (Carbon Monoxide)	0.134447	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	0.76	--
DT-EER (Drive Trace Energy Economy Rating)	0.15	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	0.63	--
MFR FE (Manufacturer Fuel Economy)	999	999
NOX (Nitrogen Oxide)	0.0025439	--
N2O (Nitrous Oxide)	0.0112547	--
HC-NM (Non-methane Hydrocarbon)	0.0009921	--
NMOG (Non-methane organic gases)	0.0010219	--
HC-TOTAL (Total Hydrocarbon)	0.0026045	--

Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE
Carbon-Related Exhaust Emissions	0	--

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	0	--

Manufacturer Test Comments NMOG = HC-NM x 1.03

Certification Summary Information Report

Test Group		VTYXT02.4H3L				Evaporative/Refueling Family				VTYXR0165J52		
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	150,000 miles	California LEV-IV SULEV30	CO	0.13	--	--	--	0.02	--	0.2	1.0	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG	0.0010	1	1.10	--	0.0038	--	0.005	999.999	Pass
CA	150,000 miles	California LEV-IV SULEV30	NMOG+NOX	0.0035	1	1.10	--	--	--	0.009	0.030	Pass
CA	150,000 miles	California LEV-IV SULEV30	NOX	0.0025	--	--	--	0.0021	--	0.005	999.999	Pass

Certification Summary Information Report

Test Group	VTYXT02.4H3L	Evaporative/Refueling Family	VTYXR0165J52
Fuel Properties			
Fuel Batch ID	2F2A12	Fuel Calibration Number	7
Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)	Fuel Batch Calibration Date	06/09/2022
Fuel Batch Calibration Effective Date	12/01/2022	Fuel Batch Calibration Ineffective Date	12/31/2022
Carbon Weight Fraction NMHC	--	Carbon Weight Fraction HC	--
Exhaust Carbon Weight Fraction	--	Fuel Methanol Volume Fraction	--
Fuel Density (grams/cubic ft)	--	Fuel Specific Gravity	0.74
Fuel Ethanol Volume Percent (%)	10	Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)	17820
Fuel Net Heat of Combustion (E10) (MJ/kg)	--	Fuel Carbon Mass Fraction (E10)	--
Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0)	0.825	Weight Fraction CO2	--
Fuel Batch ID	2D3A01	Fuel Calibration Number	3
Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)	Fuel Batch Calibration Date	04/19/2023
Fuel Batch Calibration Effective Date	10/02/2023	Fuel Batch Calibration Ineffective Date	10/31/2023
Carbon Weight Fraction NMHC	--	Carbon Weight Fraction HC	--
Exhaust Carbon Weight Fraction	--	Fuel Methanol Volume Fraction	--
Fuel Density (grams/cubic ft)	--	Fuel Specific Gravity	0.739
Fuel Ethanol Volume Percent (%)	9.6	Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)	17859
Fuel Net Heat of Combustion (E10) (MJ/kg)	--	Fuel Carbon Mass Fraction (E10)	--
Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0)	0.825	Weight Fraction CO2	--
Fuel Batch ID	1F9-04	Fuel Calibration Number	1
Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)	Fuel Batch Calibration Date	06/05/2019
Fuel Batch Calibration Effective Date	07/25/2019	Fuel Batch Calibration Ineffective Date	07/31/2019
Carbon Weight Fraction NMHC	--	Carbon Weight Fraction HC	--
Exhaust Carbon Weight Fraction	--	Fuel Methanol Volume Fraction	--
Fuel Density (grams/cubic ft)	--	Fuel Specific Gravity	0.739
Fuel Ethanol Volume Percent (%)	9.9	Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)	17823
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	2D3A01	Fuel Calibration Number	5
Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)	Fuel Batch Calibration Date	04/19/2023

Certification Summary Information Report

Test Group	VTYXT02.4H3L	Evaporative/Refueling Family	VTYXR0165J52
Fuel Batch Calibration Effective Date	12/01/2023	Fuel Batch Calibration Ineffective Date	12/31/2023
Carbon Weight Fraction NMHC	--	Carbon Weight Fraction HC	--
Exhaust Carbon Weight Fraction	--	Fuel Methanol Volume Fraction	--
Fuel Density (grams/cubic ft)	--	Fuel Specific Gravity	0.739
Fuel Ethanol Volume Percent (%)	9.6	Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)	17859
Fuel Net Heat of Combustion (E10) (MJ/kg)	--	Fuel Carbon Mass Fraction (E10)	--
Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0)	0.825	Weight Fraction CO2	--
Fuel Batch ID	2L2A02	Fuel Calibration Number	11
Test Fuel Type	28 - Cold CO E10 Regular Gasoline (Tier 3)	Fuel Batch Calibration Date	11/04/2022
Fuel Batch Calibration Effective Date	10/02/2023	Fuel Batch Calibration Ineffective Date	10/31/2023
Carbon Weight Fraction NMHC	--	Carbon Weight Fraction HC	--
Exhaust Carbon Weight Fraction	--	Fuel Methanol Volume Fraction	--
Fuel Density (grams/cubic ft)	--	Fuel Specific Gravity	0.738
Fuel Ethanol Volume Percent (%)	10	Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)	17799
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	2F2A12	Fuel Calibration Number	6
Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)	Fuel Batch Calibration Date	06/09/2022
Fuel Batch Calibration Effective Date	11/15/2022	Fuel Batch Calibration Ineffective Date	11/30/2022
Carbon Weight Fraction NMHC	--	Carbon Weight Fraction HC	--
Exhaust Carbon Weight Fraction	--	Fuel Methanol Volume Fraction	--
Fuel Density (grams/cubic ft)	--	Fuel Specific Gravity	0.74
Fuel Ethanol Volume Percent (%)	10	Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)	17820
Fuel Net Heat of Combustion (E10) (MJ/kg)	--	Fuel Carbon Mass Fraction (E10)	--
Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0)	0.825	Weight Fraction CO2	--

Certification Summary Information Report

Test Group		VTYXT02.4H3L			Evaporative/Refueling Family			VTYXR0165J52	
Consolidated List of Standards									
Exhaust Standards									
Cert Region		Federal			Cert/In-Use Code			Cert	
Vehicle Class		LDT2 (LVW 3751-5750, GVW 0-6000)			Standard Level			Federal Tier 3 Bin 30	
Fuel		Gasoline			Test Procedure			HWFE	
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
150,000 miles	CREE	--	--	--	--	--	--	0.057	999.9999
150,000 miles	NMOG	--	1	1.03	--	--	--	0.0038	999.999
150,000 miles	NMOG+NOX	--	1	1.03	--	--	--	0.0059	0.030
150,000 miles	NOX	--	--	--	--	--	--	0.0021	999.999
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			US06	
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
150,000 miles	PM	--	--	--	--	--	--	0.0000	0.006
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			HWFE	
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
150,000 miles	NMOG	--	1	1.03	--	--	--	0.0038	999.999
150,000 miles	NMOG+NOX	--	1	1.03	--	--	--	0.0059	0.030
150,000 miles	NOX	--	--	--	--	--	--	0.0021	999.999

Certification Summary Information Report

Test Group		VTYXT02.4H3L			Evaporative/Refueling Family			VTYXR0165J52	
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
150,000 miles	CO	--	--	--	--	--	--	0.02	1.0
150,000 miles	CO-COMP	--	--	--	--	--	--	0.02	4.2
150,000 miles	CREE	--	--	--	--	--	--	0.057	999.9999
150,000 miles	HCHO	--	--	--	--	--	--	--	0.004
150,000 miles	NMOG	--	1	1.10	--	--	--	0.0038	999.999
150,000 miles	NMOG+NOX	--	1	1.10	--	--	--	0.0059	0.030
150,000 miles	NMOG+NOX-COMP	--	1	1.03	--	--	--	0.0059	0.040
150,000 miles	NOX	--	--	--	--	--	--	0.0021	999.999
150,000 miles	PM	--	--	--	--	--	--	0.0000	0.003

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			US06	
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
150,000 miles	CO	--	--	--	--	--	--	0.02	9.6
150,000 miles	NMOG	--	--	--	--	--	--	0.0038	999.999
150,000 miles	NMOG+NOX	--	--	--	--	--	--	0.0059	0.036
150,000 miles	NOX	--	--	--	--	--	--	0.0021	999.999
150,000 miles	PM	--	--	--	--	--	--	0.0000	0.006

Certification Summary Information Report

Test Group		VTYXT02.4H3L			Evaporative/Refueling Family			VTYXR0165J52	
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	--	--	--	--	--	--	0.02	1.0
150,000 miles	NMOG	--	1	1.10	--	--	--	0.0038	999.999
150,000 miles	NMOG+NOX	--	1	1.10	--	--	--	0.0059	0.030
150,000 miles	NOX	--	--	--	--	--	--	0.0021	999.999
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			Federal fuel 2-day exhaust (w/can load)	
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
150,000 miles	CO	--	--	--	--	--	--	0.02	1.0
150,000 miles	HCHO	--	--	--	--	--	--	--	0.004
150,000 miles	METHANE	--	--	--	--	--	--	0.0063	0.030
150,000 miles	N2O	--	--	--	--	--	--	0.0009	0.010
150,000 miles	NMOG	--	1	1.10	--	--	--	0.0038	999.999
150,000 miles	NMOG+NOX	--	1	1.10	--	--	--	0.0059	0.030
150,000 miles	NOX	--	--	--	--	--	--	0.0021	999.999
150,000 miles	PM	--	--	--	--	--	--	0.0000	0.001
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			CA fuel 50 Deg(F) exhaust test	
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
4,000 miles	CO	--	--	--	--	--	--	--	1.0
4,000 miles	HCHO	--	--	--	--	--	--	--	0.008
4,000 miles	NMOG	--	1	1.10	--	--	--	--	999.999
4,000 miles	NMOG+NOX	--	1	1.10	--	--	1	--	0.060
4,000 miles	NOX	--	--	--	--	--	--	--	999.999

Certification Summary Information Report

Test Group	VTYXT02.4H3L				Evaporative/Refueling Family			VTYXR0165J52		
Cert Region	Federal				Cert/In-Use Code			Cert		
Vehicle Class	LDT2 (LVW 3751-5750, GVW 0-6000)				Standard Level			Federal Tier 3 Bin 30		
Fuel	Gasoline				Test Procedure			Cold CO		
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std	
50,000 miles	CO	--	--	--	--	--	--	0.01	12.5	
120,000 miles	HC-NM	--	--	--	--	--	--	0.01	0.3	
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			Cold CO		
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std	
50,000 miles	CO	--	--	--	--	--	--	0.01	12.5	
Evaporative/Refueling Standards										
Evaporative/Refueling Family	VTYXR0165J52				Cert Region			Federal		
Cert/In-Use Code	Cert				Standard Level			Federal Tier 3 Evap		
Test Procedure	Federal fuel 3-day evap									
Fuel	Useful Life	Emission Name	Rounded Result			Std		Add DF		
Gasoline	150,000 miles	HC-TOTAL-EQUIV	--			0.400		0.0000		
Evaporative/Refueling Family	VTYXR0165J52				Cert Region			California + CAA Section 177 states		
Cert/In-Use Code	Cert				Standard Level			California LEV-IV Zero Evap (Option 2)		
Test Procedure	2-day evap									
Fuel	Useful Life	Emission Name	Rounded Result			Std		Add DF		
Gasoline	150,000 miles	HC-TOTAL-EQUIV	--			0.400		0.0000		

Certification Summary Information Report

Test Group		VTYXT02.4H3L		Evaporative/Refueling Family		VTYXR0165J52	
Evaporative/Refueling Family		VTYXR0165J52		Cert Region		California + CAA Section 177 states	
Cert/In-Use Code		Cert		Standard Level		California LEV-IV Zero Evap (Option 2)	
Test Procedure		Federal fuel refueling test (ORVR)					
Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF		
Gasoline	150,000 miles	HC-TOTAL-EQUIV	--	0.20	0.000		
Evaporative/Refueling Family		VTYXR0165J52		Cert Region		Federal	
Cert/In-Use Code		Cert		Standard Level		Federal Tier 3 Evap	
Test Procedure		Spitback					
Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF		
Gasoline	4,000 miles	SPITBACK	--	1.0	0.00		
Evaporative/Refueling Family		VTYXR0165J52		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 3-day evap					
Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF		
Gasoline	150,000 miles	HC-TOTAL-EQUIV	--	0.400	0.0000		
Evaporative/Refueling Family		VTYXR0165J52		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 Running Loss					
Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF		
Gasoline	150,000 miles	HC-TOTAL-EQUIV	--	0.01	0.000		
Evaporative/Refueling Family		VTYXR0165J52		Cert Region		Federal	
Cert/In-Use Code		Cert		Standard Level		Federal Tier 3 Evap	
Test Procedure		2-day evap					
Fuel	Useful Life	Emission Name	Rounded Result	Std	Add DF		
Gasoline	150,000 miles	HC-TOTAL-EQUIV	--	0.400	0.0000		

Certification Summary Information Report

Test Group		VTYXT02.4H3L		Evaporative/Refueling Family		VTYXR0165J52	
Evaporative/Refueling Family		VTYXR0165J52		Cert Region		Federal	
Cert/In-Use Code		Cert		Standard Level		Federal Tier 3 Evap	
Test Procedure		Federal Fuel Running Loss					
Fuel		Useful Life		Emission Name		Rounded Result	
Std		Add DF					
Gasoline		150,000 miles		HC-TOTAL-EQUIV		--	
						0.05	
						0.000	
Evaporative/Refueling Family		VTYXR0165J52		Cert Region		Federal	
Cert/In-Use Code		Cert		Standard Level		Federal Tier 3 Evap	
Test Procedure		Federal fuel refueling test (ORVR)					
Fuel		Useful Life		Emission Name		Rounded Result	
Std		Add DF					
Gasoline		150,000 miles		HC-TOTAL-EQUIV		--	
						0.20	
						0.000	

Certification Summary Information Report

Test Group		VTYXT02.4H3L	Evaporative/Refueling Family		VTYXR0165J52
Glossary					
Useful Life					
4	4,000 miles		120	120,000 miles	
50	50,000 miles		150	150,000 miles	
100	100,000 miles				
Emission Name					
HC-TOTAL	Total Hydrocarbon		COMB-CREE	Combined Carbon-Related Exhaust Emissions	
CO	Carbon Monoxide		COMB-OPT-CREE	Combined Optional Carbon-Related Exhaust Emissions	
CO2	Carbon dioxide		HC-TOTAL-EQUIV	Total Hydrocarbon equivalent - Evap only	
CREE	Carbon-Related Exhaust Emissions		METHANE-COMB	Combined CH4 for HD 2b/3 vehicles only	
OPT-CREE	Optional Carbon-Related Exhaust Emissions		N2O-COMB	Combined Nitrous Oxide for HD 2b/3 vehicles only	
NOX	Nitrogen Oxide		LEAK-DIA	Effective Leak Diameter (inches)	
PM	Particulate Matter		LEAK-GAS CAP	Gas Cap Leakage (cc/min)	
PM-COMP	SFTP Composite Particulate Matter		CO2-COMB	Combined Carbon Dioxide for HD 2b/3 Vehicles Only	
HC-NM	Non-methane Hydrocarbon		KW-HRS	Integrated DC KW-HRS	
OMHCE	Organic material Hydrocarbon Equivalent		CH4 BAG 1	Bag 1 Methane	
OMNMHCE	Organic material non-methane HC equivalent		CH4 BAG 2	Bag 2 Methane	
NMOG	Non-methane organic gases		CH4 BAG 3	Bag 3 Methane	
HCHO	Formaldehyde		CH4 BAG 4	Bag 4 Methane	
H3C2HO	Acetaldehyde		CO BAG 1	Bag 1 Carbon Monoxide	
HC-NM+NOX	SFTP Non-methane Hydrocarbon + Nitrogen Oxides for US06 or SC03		CO BAG 2	Bag 2 Carbon Monoxide	
HC-NM+NOX-COMP	SFTP Composite Non-methane Hydrocarbon + Nitrogen Oxides		CO BAG 3	Bag 3 Carbon Monoxide	
CO-COMP	SFTP Composite Carbon Monoxide		CO BAG 4	Bag 4 Carbon Monoxide	
ETHANOL	C2H5OH - Ethanol		NMOG BAG 1	Bag 1 Non-methane organic gases	
FE BAG 1	Bag 1 Fuel Economy		NMOG BAG 2	Bag 2 Non-methane organic gases	
FE BAG 2	Bag 2 Fuel Economy		NMOG BAG 3	Bag 3 Non-methane organic gases	
FE BAG 3	Bag 3 Fuel Economy		NMOG BAG 4	Bag 4 Non-methane organic gases	
FE BAG 4	Bag 4 Fuel Economy		ACT-DISTANCE BAG 1	Bag 1 Actual Distance	
MFR FE	Manufacturer Fuel Economy		ACT-DISTANCE BAG 2	Bag 2 Actual Distance	
HC	Hydrocarbon for Running Loss and ORVR		ACT-DISTANCE BAG 3	Bag 3 Actual Distance	
METHANE	CH4 - Methane		ACT-DISTANCE BAG 4	Bag 4 Actual Distance	
METHANOL	CH3OH - Methanol		HC-TOTAL BAG 1	Bag 1 Total Hydrocarbon	
N2O	Nitrous Oxide		HC-TOTAL BAG 2	Bag 2 Total Hydrocarbon	
SPITBACK	Spitback Hydrocarbon in grams		HC-TOTAL BAG 3	Bag 3 Total Hydrocarbon	
AMP-HRS	Integrated Amp-hours		HC-TOTAL BAG 4	Bag 4 Total Hydrocarbon	
START-SOC	System Start State of Charge Watt-hours		WATT-HRS BAG 1	Bag 1 Watt Hours	
END-SOC	System End State of Charge Watt-hours		WATT-HRS BAG 2	Bag 2 Watt Hours	

Certification Summary Information Report

Test Group		VTYXT02.4H3L	Evaporative/Refueling Family		VTYXR0165J52
ACT-DISTANCE	Actual Distance Driven (miles)		WATT-HRS BAG 3	Bag 3 Watt Hours	
AS-VOLT	Average System Voltage		WATT-HRS BAG 4	Bag 4 Watt Hours	
CO2 BAG 1	Bag 1 Carbon Dioxide		WATT-HRS	Watt Hours	
CO2 BAG 2	Bag 2 Carbon Dioxide		HC-NM BAG 1	Bag 1 Non-methane Hydrocarbon	
CO2 BAG 3	Bag 3 Carbon Dioxide		HC-NM BAG 2	Bag 2 Non-methane Hydrocarbon	
CO2 BAG 4	Bag 4 Carbon Dioxide		HC-NM BAG 3	Bag 3 Non-methane Hydrocarbon	
NMOG+NOX	Non-methane organic gases plus Nitrogen Oxides		HC-NM BAG 4	Bag 4 Non-methane Hydrocarbon	
NMOG+NOX-COMP	SFTP Composite Non-methane Organic Gases + Nitrogen Oxides		N2O BAG 1	Bag 1 Nitrous Oxide	
DT-IWRR	Drive Trace Inertia Work Ratio Rating		N2O BAG 2	Bag 2 Nitrous Oxide	
DT-ASCR	Drive Trace Absolute Speed Change Rating		N2O BAG 3	Bag 3 Nitrous Oxide	
DT-EER	Drive Trace Energy Economy Rating		N2O BAG 4	Bag 4 Nitrous Oxide	
Certification Region					
CA	California + CAA Section 177 states		FA	Federal	
Exhaust Emission Standard Level					
B1	Federal Tier 2 Bin 1		HDV2B340	Federal Tier 3 HD Class 2b Transitional Bin 340	
B2	Federal Tier 2 Bin 2		HDV2B250	Federal Tier 3 HD Class 2b Bin 250	
B3	Federal Tier 2 Bin 3		HDV2B200	Federal Tier 3 HD Class 2b Bin 200	
B4	Federal Tier 2 Bin 4		HDV2B170	Federal Tier 3 HD Class 2b Bin 170	
B5	Federal Tier 2 Bin 5		HDV2B150	Federal Tier 3 HD Class 2b Bin 150	
B6	Federal Tier 2 Bin 6		HDV2B0	Federal Tier 3 HD Class 2b Bin 0	
B7	Federal Tier 2 Bin 7		HDV3B630	Federal Tier 3 HD Class 3 Transitional Bin 630	
B8	Federal Tier 2 Bin 8		HDV3B570	Federal Tier 3 HD Class 3 Transitional Bin 570	
B9	Federal Tier 2 Bin 9		HDV3B400	Federal Tier 3 HD Class 3 Bin 400	
B10	Federal Tier 2 Bin 10		HDV3B270	Federal Tier 3 HD Class 3 Bin 270	
B11	Federal Tier 2 Bin 11		HDV3B230	Federal Tier 3 HD Class 3 Bin 230	
HDV1	HDV1 (Federal HD chassis Class 2b GVW 8501-10000)		HDV3B200	Federal Tier 3 HD Class 3 Bin 200	
HDV2	HDV2 (Federal HD chassis Class 3 GVW 10001-14000)		HDV3B0	Federal Tier 3 HD Class 3 Bin 0	
L2	California LEV-II LEV		L4SULEV100	California LEV-IV SULEV100	
L2OP	California LEV-II LEV Optional		L4SULEV125	California LEV-IV SULEV125	
U2	California LEV-II ULEV		L4SULEV15	California LEV-IV SULEV15	
S2	California LEV-II SULEV		L4SULEV150	California LEV-IV SULEV150	
ZEV	California ZEV		L4SULEV170	California LEV-IV SULEV170	
OT	Other		L4SULEV175	California LEV-IV SULEV175	
T1	Federal Tier 1		L4SULEV20	California LEV-IV SULEV20	
PZEV	California PZEV		L4SULEV200	California LEV-IV SULEV200	
L2LEV160	California LEV-II LEV160		L4SULEV230	California LEV-IV SULEV230	
L2ULEV125	California LEV-II ULEV125		L4SULEV25	California LEV-IV SULEV25	
L2SULEV30	California LEV-II SULEV30		L4SULEV30	California LEV-IV SULEV30	
L2LEV395	California LEV-II LEV395		L4SULEV75	California LEV-IV SULEV75	

Certification Summary Information Report

Test Group		VTYXT02.4H3L	Evaporative/Refueling Family		VTYXR0165J52
L2ULEV340	California LEV-II ULEV340		L4SULEV85	California LEV-IV SULEV85	
L2LEV630	California LEV-II LEV630		L4ULEV125	California LEV-IV ULEV125	
L2ULEV570	California LEV-II ULEV570		L4ULEV200	California LEV-IV ULEV200	
L3LEV160	California LEV-III LEV160		L4ULEV250	California LEV-IV ULEV250	
L3ULEV125	California LEV-III ULEV125		L4ULEV270	California LEV-IV ULEV270	
L3ULEV70	California LEV-III ULEV70		L4ULEV40	California LEV-IV ULEV40	
L3ULEV50	California LEV-III ULEV50		L4ULEV400	California LEV-IV ULEV400	
L3SULEV30	California LEV-III SULEV30		L4ULEV50	California LEV-IV ULEV50	
L3SULEV20	California LEV-III SULEV20		L4ULEV60	California LEV-IV ULEV60	
L3LEV395	California LEV-III LEV395		L4ULEV70	California LEV-IV ULEV70	
L3ULEV340	California LEV-III ULEV340		T4B170	Federal Tier 4 MDV Bin 170	
L3ULEV250	California LEV-III ULEV250		T4B150	Federal Tier 4 MDV Bin 150	
L3ULEV200	California LEV-III ULEV200		T4B125	Federal Tier 4 MDV Bin 125	
L3SULEV170	California LEV-III SULEV170		T4B100	Federal Tier 4 MDV Bin 100	
L3SULEV150	California LEV-III SULEV150		T4B85	Federal Tier 4 MDV Bin 85	
L3LEV630	California LEV-III LEV630		T4B75	Federal Tier 4 MDV Bin 75	
L3ULEV570	California LEV-III ULEV570		T4B70	Federal Tier 4 Bin 70	
L3ULEV400	California LEV-III ULEV400		T4B65	Federal Tier 4 Bin 65	
L3ULEV270	California LEV-III ULEV270		T4B60	Federal Tier 4 Bin 60	
L3SULEV230	California LEV-III SULEV230		T4B55	Federal Tier 4 Bin 55	
L3SULEV200	California LEV-III SULEV200		T4B50	Federal Tier 4 Bin 50	
T3B160	Federal Tier 3 Bin 160		T4B45	Federal Tier 4 Bin 45	
T3B125	Federal Tier 3 Bin 125		T4B40	Federal Tier 4 Bin 40	
T3B110	Federal Tier 3 Transitional Bin 110		T4B35	Federal Tier 4 Bin 35	
T3B85	Federal Tier 3 Transitional Bin 85		T4B30	Federal Tier 4 Bin 30	
T3SULEV30	Federal Tier 3 Transitional LEV-II SULEV30 Carryover		T4B25	Federal Tier 4 Bin 25	
T3B70	Federal Tier 3 Bin 70		T4B20	Federal Tier 4 Bin 20	
T3B50	Federal Tier 3 Bin 50		T4B15	Federal Tier 4 Bin 15	
T3B30	Federal Tier 3 Bin 30		T4B10	Federal Tier 4 Bin 10	
T3B20	Federal Tier 3 Bin 20		T4B5	Federal Tier 4 Bin 5	
T3B0	Federal Tier 3 Bin 0		T4B0	Federal Tier 4 Bin 0	
HDV2B395	Federal Tier 3 HD Class 2b Transitional Bin 395				
Transmission Type Code					
AMS	Automated Manual- Selectable (e.g. Automated Manual with paddles)	M	Manual		
A	Automatic	OT	Other		
AM	Automated Manual	SA	Semi-Automatic		
CVT	Continuously Variable	SCV	Selectable Continuously Variable (e.g. CVT with paddles)		
Drive System Code					
4	4-Wheel Drive	P	Part-time 4-Wheel Drive		

Certification Summary Information Report

Test Group		VTYXT02.4H3L	Evaporative/Refueling Family		VTYXR0165J52
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	

7. Test Results

Test group: VTYXT02.4H3L

1. Litmus test result

Test Group Fuel	FTP	US06	SC03	Cold CO	Highway	City Litmus Value	City Litmus Threshold	Highway Litmus Value	Highway Litmus Threshold
Gasoline	STYX10084058	STYX10084059	STYX10084061	STYX10084057	STYX10084060	18.0	17.0	24.7	22.5

2. Interim/In-Use Standard

	Federal	California
FTP	Not applicable	Not applicable
FTP (QDA)	-	Not applicable
SFTP (Composite)	Not applicable	-
SFTP (US06)	-	Not applicable

8. Emission testing waiver statements

Please refer to the FOI common file for the following test waiver statements:

- High Altitude Exhaust Emissions
- High Altitude Evap/Refueling Emissions
- 91 RON fuel testing
- Formaldehyde (HCHO)
- Spitback
- Tier 4 Evaporative Leak Standard

9. **OBD System Description**

Please refer to OBD documents.

Toyota states that the OBD application meets the requirements of 40 CFR 86.1806-17 and 86.1844-01(d)(9) and is considered part of the Part 1 certification application.

10. **Description of Alternate-fueled Vehicles**

Please refer to the FOI common file.

11. AECD Descriptions

11.1 AECD and EI-AECD Descriptions

Confidential information

11.2 SFTP / Lean Best Torque (LBT) Air fuel Ratio Information

Please refer to the CBI common file.

12. Description of Vehicles Covered by Certificate and Test Parameters

12.1 Vehicle parameters

Durability Group : VTYXHHGNNB23
 Test Group : VTYXT02.4H3L
 Evap./Refueling Family : VTYXR0165J52
 Emission Control System : DFI+SFI,WR-HO2S(2),TWC(2),TC,CAC

Car line	Model name	Model code	Engine Code	Valves /cyl	Engine Disp. (L)	Sales Area	Transmission*2/ Overdrive	SIL	Tire*1	N/V	ETW (lb.)	Fuel tank volume (L)	Rated HP
GRAND HIGHLANDER HYBRID AWD	TOYOTA GRAND HIGHLANDER HYBRID MAX LIMITED	TASH15L-AWTVTA	01	4	2.393	50	PC60-C (S6-3 SS) / N/A	N/A	255/55R20 AS	28.4	5250	65	265@6000
	TOYOTA GRAND HIGHLANDER HYBRID MAX PLATINUM	TASH15L-AWTZTA	01	4	2.393	50	PC60-C (S6-3 SS) / N/A	N/A	255/55R20 AS	28.4	5250	65	265@6000
RX 500h AWD	LEXUS RX 500h F SPORT PERFORMANCE AWD	TALH17L-CWTGTA	03	4	2.393	50	PC60-A (S6-3 SS) / N/A	N/A	235/50R21 AS	28.9	5000	65	271@6000

Note *1: AS : All-season tire

*2: The number after "-" indicates the number of transmission mode.

12.1 Vehicle parameters

Car line	Model name	Model code	Engine Code	Valves /cyl	Engine Disp. (L)	Sales Area	Transmission*2/ Overdrive	SIL	Tire*1	N/V	ETW (lb.)	Fuel tank volume (L)	Rated HP
TX 500h AWD	LEXUS TX 500h F SPORT PERFORMANCE PREMIUM /LEXUS TX 500h F SPORT PERFORMANCE LUXURY	TAUH15L-BWTSTA	02	4	2.393	50	PC60-D (S6-3 SS) / N/A	N/A	255/45R22 AS	28.0	5250	65	271@6000

Note *1: AS : All-season tire

*2: The number after “-” indicates the number of transmission mode.

12.2 Test Parameters

Please refer to the FOI common file.

13. Projected Sales and Compliance Plans

Please refer to the CBI common file.

14. Request for Certificate

Test group : VTYXT02.4H3L
Evap/refueling family : VTYXR0165J52

TOYOTA MOTOR CORPORATION requests that EPA/CARB issue a 2027 model year certificate of conformity and Executive Order for the above specified test group/evaporative family combination more fully described in this application. This combination complies with the following emission standards:

	low-altitude	high altitude	Bin No
Federal: Interim Tier4	<u>X</u>	<u>X</u>	<u>30</u>

California: See Federal



Kevin Webber
General Manager
Regulatory Affairs & Environmental Sustainability
Toyota Motor North America, Inc.

15. Other Information

15.1 Fee filing form

Invoice No.:EPA2027MY010

US EPA Fee Form

[Help and EPA Instructions](#)

* Required Field

Tracking Information

Pay.gov Tracking ID: 282SM5NP

Agency Tracking ID: 77406619993

General Information

Date: 06/02/2026

Process Code *

Submit New Fee Filing Form

Manufacturer Code *

TYX

Manufacturer Name *

Toyota Motor Corporation

Contact Name *

Keisha Anderson

Contact Email Address *

keisha.anderson@toyota.com

Contact Phone *

734-995-3552

Calendar Year complete application submitted to EPA *

2026

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

Payment Information

Amount Owed

\$32,317.00

Payment Type *

Offline ACH

Comments

EPA Form Number 3520-29

OMB Control No. 2060-0545

Approval expires 7/31/2027

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

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

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

Engine Family / Evaporative Family / Test Group *

VTYXT02.4H3L

Certificate Request Type (Industry Sector Code)

Certificate Request Type *

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

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

ICI VIN Number (Required for ICIs Only)

Do you qualify for a Reduced Fee? *

No

16. Confidential Information

Please refer to the CBI common file.

17.8 Emission Control Information Labels

<GRAND HIGHLANDER HYBRID>

TOYOTA	VEHICLE EMISSION CONTROL INFORMATION	
	TOYOTA MOTOR CORPORATION	
Conforms to regulations 2027MY	TEST GROUP : VTYXT02.4H3L EVAP FAMILY: VTYXR0165J52	
U.S.EPA : IT4B30 LDT3 OBD :CAII Fuel : Gasoline		
This vehicle is authorized for sale in California		
DFI+SFI, WR-HO2S(2), TWC(2), TC, CAC		
No adjustments needed.		
F0293	T24A-FTS	ML

<RX 500h>

LEXUS	VEHICLE EMISSION CONTROL INFORMATION	
	TOYOTA	TOYOTA MOTOR CORPORATION
Conforms to regulations 2027MY	TEST GROUP : VTYXT02.4H3L EVAP FAMILY : VTYXR0165J52	
U.S.EPA :IT4B30 LDT2 OBD:CAII Fuel:Gasoline		
This vehicle is authorized for sale in California		
No adjustments needed.	DFI+SFI, WR-HO2S(2), TWC(2), TC, CAC	
F0334	T24A-FTS	NR

<TX 500h>

LEXUS	VEHICLE EMISSION CONTROL INFORMATION	
	TOYOTA	TOYOTA MOTOR CORPORATION
Conforms to regulations 2027MY	TEST GROUP : VTYXT02.4H3L EVAP FAMILY : VTYXR0165J52	
U.S.EPA :IT4B30 LDT3 OBD:CAII Fuel:Gasoline		
This vehicle is authorized for sale in California		
No adjustments needed.	DFI+SFI, WR-HO2S(2), TWC(2), TC, CAC	
F0353	T24A-FTS	PG