

Application for Certification

Model Year: 2027
 Manufacturer Name: BMW

Test Group: VBMXT04.4S6M
 Test Group Description: V8, 4-stroke, 4.4 Liter, gasoline

Durability Group: VBMXHHGVNV39
 Durability Group Description: 4-Stroke Otto Cycle
 gasoline
 direct fuel injection
 ceramic, metal, monolith
 Palladium, Rhodium
 Three-Way Catalyst

Evaporative Group: VBMXR0180G05

Applicable Standards: EPA
 FTP Standard: Interim Tier 4 - Bin 70
 SFTP Standard: Interim Tier 4 composite - 0.070
 EVAP FEL: Tier 3 - 500

Vehicle Classes Covered: EPA
 LDT 4

Carlines Covered: X6 M Competition

Test EDV:

VID	CFG	Fuel	FTP	HWY	US06	SC03	Cold CO
9M38654	00	T3E10	RBMX10078322	RBMX10078323	RBMX10078324	RBMX10078325	RBMX10078329
9M38654	02	T2E0	RBMX10078332	RBMX10078333	---	---	---

Test EDV EVAP:

Family	VID	CFG	Fuel	3-day	RL	2-day	ORVR	BTP	Leak
R0180G05	L084470	00	T3E10	MBMX10064490	MBMX10064491	MBMX10064376	MBMX10063966	MBMX10063967	MBMX10064377

For questions, Contact: Carlheinz Bayer, 201 / 571 - 5193

Table of Contents

Section Contents

1 Correspondence and Communications

2 Durability Group Description

3 Evaporative/Refueling Family Description

4 Durability Procedure Description

5 Test Group Description

6 Test Vehicle Description

7 Test Results

8 Statements

9 OBD System Description

10 Description of Alternate-fueled Vehicles

11 AECD descriptions

12 Descriptions of vehicles covered by certificate and test parameters

13 Projected Sales

14 Request for Certification

15 Other Information

16 Confidential information / Catalyst Loading Information

17 Attachment

1. Correspondence and Communications

- 1.1. Authorized Persons Refer to Common Section
- 1.2. Certificate Information Refer to Common Section
- 1.3. Primary certification contact:

Name: Carlheinz Bayer
Phone Number: 201 / 571 - 5193
Fax Number: 201 / 571 - 5479
E-Mail-Address: Carlheinz.Bayer@bmwna.com

2. Durability Group Description

2.1.	Durability Group Name	VBMXHHGVNV39
2.2.	Combustion Cycle	4-Stroke Otto Cycle
2.3.	Engine type	piston, water cooled
2.4.	Fuel used	gasoline
2.5.	Basic fuel metering system	direct fuel injection
2.6.	Catalyst construction	ceramic metal monolith
2.7.	Precious Metals in Catalyst	Palladium Rhodium
2.8.	Particulate Filter Construction	not applicable
2.9.	Precious Metals in Particulate Filter	not applicable
2.10.	Precious Metal Loading	Refer to Section 16, Confidential Information
2.11.	Range of Catalyst Grouping Statistics	6.2 - 8.2

3. Evaporative / Refueling Family Description

- 3.1. Evaporative / Refueling Family Name VBMXR0180G05
- 3.2. Evaporative / Refueling Family Parameters specified in 40 CFR § 86.1821-01:
- 3.2.1. Type of vapor storage device canister
- 3.2.2. Basic canister design
Working capacity: 180 g
System configuration: 1 canister
Canister Construction: active charcoal granulate
closed bottom
Canister Materials: plastic
- 3.2.3. Fuel system time-contr. DI
- 3.2.4. Type of refueling emission control system integrated system
- 3.2.5. Fillpipe seal mechanism liquid seal
- 3.2.6. Vapor control system passive mechanical system with liquid seal
- 3.2.7. Purge control system electric purge valve
- 3.2.8. Vapor hose material multilayer plastic
- 3.2.9. Fuel tank material hdpe
- 3.3. Leak Family Description same Leak-Standard in between the evaporative family

3.4. ORVR Statement

Evaporative Family VBMXR0180G05

ORVR safety application is carried over from previous model year.

This evaporative / refueling family was first certified for model year 2019.

During this time period we had no in-use problems or defects related to the ORVR system that required action by BMW.

There have been no service notifications, campaigns, instructions or bulletins to dealers or field personal or changes in production procedures or components.

No safety-related defect campaigns have been conducted related to the ORVR system.

Therefore no EPA/NHTSA review of this evaporative / refueling family was required.

4. Durability Procedure Description

4.1. Description of used durability process

4.1.1. Alternative Durability Program for Exhaust Emissions: The durability data vehicle was aged according to the bench aging process described in §86.1823-08. Following parameters were used to age the catalyst of the durability data vehicle:

	Exhaust branch 1. line	Exhaust branch 2. line
Tref [°C] =	858.0	857.7
calculated tref [h] =	370.7	372.2
effective tref [h] =	371.5	371.5

Statement: Based on BMW`s good engineering judgment, all the vehicles described in this Application for Certification comply with all applicable intermediate and full useful life standards.

4.1.2. Durability Program for Evaporative/Refueling Emissions: Confidential Information:
Refer to Common Section

4.2. Determination of certification Levels

4.2.1. Exhaust Emissions: additive deterioration factor:

For Deterioration Factors refer to Summary Sheet enclosed in Chapter 7 of this application.

4.2.2. Evaporative/Refueling Emissions: additive deterioration factor:

For Deterioration Factors refer to Summary Sheet enclosed in Chapter 7 of this application.

5. Test Group Description

5.1.	Test Group Name	VBMXT04.4S6M
5.2.	Engine information	
5.2.1.	Engine displacement	4395 cm ³
5.2.2.	Arrangement of cylinders	in V-configuration
5.2.3.	Number of cylinders	8
5.3.	Hybrid Electric Vehicle System Description	
5.3.1.	Electric Motor	Refer to Section 12
5.3.2.	Battery	Refer to Section 12
5.4.	Vehicle class	EPA LDT 4
5.5.	Emission standards class	Interim Tier 4 - Bin 70
5.6.	Applicable emission standards	Refer to Summary Sheet enclosed in Section 7 of this application.

6. Test Vehicle Description

6.1. Test Vehicle Description EDV, FEDV, DDV

VID	CFG	Carline	Model	Trans Type	Type	Fuel	ESS	Road Load CFG	Gear	Mode	eDrive	ETW
9M38654	00	--	X5 M Competition	SA-8	EDV	T3E10	OFF	10	refer to section 12	refer to section 12	refer to section 12	6000
9L26165	---	---	XM	---	DDV	T3E10	---	---	---	---	---	6500

Test parameters are described in the EV-CIS vehicle information

Road Load Configuration Description

- X_ means number of FEDV tire groups used for this model
- 10 Road Load for EDV (worst case)
- 11 Road Load for FEDV configuration

6.2. Test Vehicle Description EVAP EDV

VID	CFG	Model	Type	Fuel	Family
L084470	00	X7 xDrive40i	EDV EVAP	T3E10	R0180G05

For complete vehicle description, refer to Certification Summary Information Report Sheet, enclosed in Section 7 of this application.
Selection of vehicles carried out according to 40 CFR §86.1828-01(a).

7. Test results (Cover page)

7.1. Certification Summary Information Report submitted to EV-CIS

see attachment:
CSI-VBMXT04.4S6M-VBMXR0180G05

7.2. Litmus Check

see attachment: 03LC-0S6M-01

8. Statements**8.1 Emission Testing Waiver Statements**

All applicable vehicles will conform with the emission standards for which emission data is not being provided, as allowed under 40 CFR §86.1806-27, §86.1811-27, §86.1829-15 and §86.1865-12. The statements below identify the standards for which emission testing was not performed.

Data submittal waiver for HCHO emission compliance

Based on our engineering evaluation of appropriate HCHO emissions we state, that all light-duty vehicles included in the respective applications comply with the applicable HCHO emission standards. According to 40 CFR §86.1829-15 (d) (4), we waive the data submittal on the basis of this statement.

Data submittal waiver for high-altitude exhaust and evaporative emissions compliance

Based on an engineering evaluation of appropriate high-altitude emission testing we state that all vehicles included in this application comply with the applicable exhaust and evaporative emissions standards at high altitude. According to 40 CFR §86.1829-15 (c), we waive the data submittal on the basis of this statement.

According to 40 CFR §86.1865-12 (h) (3), we state for all vehicles included in this application that the hardware and software emission control strategies used during low altitude condition testing are used similarly across all altitudes for in-use operation.

According to 40 CFR §86.1811-27(c)(4) for Tier 4 vehicles we state based on an engineering evaluation for all vehicles included in this application that common calibration approaches are used at high altitudes, there is no deviation from low altitude emission control practices.

Evaporative Leak-Detection

For test groups not selected for OBD demonstration testing we state as the manufacturer, consistent with good engineering judgment, that all vehicles included in this application comply with the applicable leak monitoring requirement.

Spitback Testing Waiver

According to 40 CFR §86.1829-15 (e) (5), BMW certifies, that all vehicles included in this application do not exceed the fuel dispensing spitback standard of 1.0g THCE as given in §86.1813-17 (c).

8.2 Compliance Statements

"Lean-on-cruise" calibration strategies

There are no "Lean-on-cruise" calibration strategies according to 40 CFR §86.1811-17 (d)(4) incorporated into the vehicle design of this Test Group.

91RON-Statement

According to VPCD 97-01 we confirm that city and highway fuel economy test result differences between comparing 91 RON operation and 96 RON operation is within 3%. Emission standards are met at 91 RON operation and 96 RON operation as demonstrated by certification testing. Hereby EDV testing is done using Tier 3 E10 fuel with 91 RON, FEDV testing is using Tier 2 E0 fuel with 96 RON.

A/C-on specific calibrations-Statement

According to 40 CFR §86.1811-27(d) we state as the manufacturer that there are no A/C-on specific calibrations that differ from A/C-off calibrations for a given set of engine operating conditions which unnecessarily reduce emission control effectiveness during A/C-on operation when the vehicle is operated under conditions that may reasonably be expected during normal operation and use.

Cold Temperature Emission Control-Statement

According to 40 CFR §86.1809-12 (c) and based on engineering evaluations of emission testing between 25°F and 68°F, we confirm for all vehicles covered by this test group, that the guideline for CO, NMHC or NMOG+NO_x as applicable, emission congruity in the intermediate temperature range is fulfilled by this test group.

Emission Control System Continuity-Statement

According to 40 CFR §86.1809-12 (e) and based on engineering evaluations of emission testing between 20°F and 86°F, we confirm for all vehicles covered by this test group, that there is no discontinuity in emissions of NMOG, PM, CO, CO₂, N₂O, NO_x, CH₄, HCHO, and in case of diesel vehicles also particulate emissions as measured on the FTP and Highway tests in the temperature range of 20°F to 86°F.

Engine Oil used for Certification Testing

Based on the guidance letters CISD-2008-11, CISD-10-11 and CD-2020-03 BMW confirms that it fulfills the "representativeness" requirements of 40 CFR 600.007(b)(6) with regard to the engine oils used in its test vehicles. BMW uses the factory fill oil for test vehicle run in, certification testing and fuel economy testing. The specific SAE viscosity grade used is included in the CSI information of each application. BMW uses non-API-registered fully synthetic oils. For factory fill, 0W-12, 0W-20, and 0W-30 oils are used (viscosity grades vary by engine model). For maintenance BMW recommends a 0W-12, 0W-20 or 0W-30 oil equivalent to or superior to the oil used for certification testing. BMW dealers are required to use this oil as part of the maintenance package included with each new vehicle. This approach is used to ensure that the oil used in certification test vehicles is no more fuel efficient than the oil that is used as the factory fill, or the oil recommended to the vehicle owner.

Enrichment Limit-Statement

According to 40 CFR §86.1811-17(d)(1) we confirm that the nominal air-fuel ratio throughout the US06 cycle at any speed and load point is not richer than the leanest air fuel mixture required to obtain maximum torque plus a tolerance of four percent.

For the engine covered by this application enrichment takes place at high engine loads (full load) resulting in high exhaust temperatures. Fixing spark advance at this condition allows very little Lambda variation without damaging either the engine (knocking) or the catalyst (over temperature). Therefore, BMW does not fix spark advance for LBT investigations at these full load engine operation conditions. The enrichment limit is fulfilled at any engine operation point.

Leak free exhaust system

Based on our engineering analysis of the complete exhaust system we state as the manufacturer, that the exhaust system installed on any vehicles covered by this application comply with the requirements of § 86.1844-01(d)(16). The analysis covers the exhaust system and all related attached components from the engine block manifold gasket surface to a point sufficiently past the last catalyst and oxygen sensor in the system to assure that air will not reach the oxygen sensors under normal operating conditions.

OBD system

According to 40 CFR 86.1844-01 (d)(9)(iv) we confirm that the emission control diagnostic system installed on any vehicles included in this application is adequate for the performance warranty test described in 40 CFR Part 85 subpart W.

9. OBD System Description

The OBD System Description of this Test Group, MY 2027 has been uploaded separately to EV-CIS.

10. Description of Alternate-fueled Vehicles

not applicable

11. Auxiliary Emission Control Devices (AECD) descriptions

Confidential Information: Please refer to uploaded AECD document in EV-CIS

12. Description of vehicles and test parameters covered by certificate

12.1. Vehicle Parameters

12.1.1. Vehicle Information

Model Name	Carline	Trans	Vehicle Class	VCW [lbs]	ETW [lbs]	GVW [lbs]	Tank [gal]	Canister Working Capacity [g]	Canister Bed Volume [ccm]	Hydrocarb on Trap - Fleece
X5 M Competition	--	SA	LDT 4	5498	6000	6614	21.9	180	3250	--
X6 M Competition	294	SA	LDT 4	5454	6000	6614	21.9	180	3250	No

12.1.2. Drive Train Information

Model Name	Carline	Trans-Type (-drive Sys.)	# Gears	Axle ratio		Engine Code	Combustion engine power [hp / rpm]	Combustion engine torque ft-lb / rpm
				front	rear			
X5 M Competition	--	SA (A)	8	3.15	3.15	S68B44T0F95X	617 / 6000	553 / 1800 - 5800
X6 M Competition	294	SA (A)	8	3.15	3.15	S68B44T0F96X	617 / 6000	553 / 1800 - 5800

12.1.3. Tire Information

Modell	Carline	Trans	Road Load CFG	Tire Front	Tire Rear
X5 M Competition	--	SA	10	worst case represented	worst case represented
X6 M Competition	294	SA	11	295/35 ZR21 107Y STD	315/35 ZR21 111Y STD
				295/35 ZR21 107Y STD	315/30 ZR22 107Y STD

M+S indicates an all season tire and not a dedicated winter tire
RSC indicates a tire with run flat capability
STD indicates a tire without run flat capability

12.1.4. Emission control system description:

- 12.1.4.1. Catalyst 2TWC, 2WU-TWC
- 12.1.4.2. Particulate Filter not applicable
- 12.1.4.3. EGR / EGRC EGR: no
EGRC: no
- 12.1.4.4. Air pump type not applicable
- 12.1.4.5. Fuel system type Direct injection
- 12.1.4.6. Intake air aspiration method exhaust gas turbocharger with boost pressure control via waste gate
- 12.1.4.7. Other Charged Air Cooler
- 12.1.5. Number of valves per cylinder 4
- 12.1.6. Engine displacement 4395 cm³
- 12.1.7. Certification Region FA
- 12.1.8. Shift Indicator Light not applicable

12.2. Test Parameters

12.2.1. Engine Starting Procedures Refer to Common Section

12.2.2. Shift Schedules not applicable

12.2.3. Dynamometer loading information

12.2.3.1. Sort of dynamometer all wheel roll

12.2.3.2. Electric Dynamometer Coefficients

Modell	Carline	Trans	Road Load CFG	N/V	A [lbf]	B [lbf/mph]	C [lbf/mph ²]	TRLHP	a [lbf]	b [lbf/mph]	c [lbf/mph ²]	Grill Shutter
X5 M Competition	--	SA	10	23.7	67.1	0.009	0.03284	20.0	0.2	0.332	0.02698	No
X6 M Competition	294	SA	11	23.7	67.0	0.009	0.03174	19.6	not applicable	not applicable	not applicable	No

Road Load Configuration Description

X_ means number of FEDV tire groups used for this model
 10 Road Load for EDV (worst case)
 11 Road Load for FEDV configuration

12.3. Hybrid Electric Vehicle System Description

12.3.1. Description of electric motor

Model Name	Type	Power (peak) [kW]	Max. torque [Nm]
X6 M Competition	PMSM (permanent magnet synchronous motor)	9 @ 2000	200

12.3.2. Description of batteries

Model Name	System Chemistry	Capacity (C) [Ah]	Energy Capacity (E) [kWh]	Nominal Voltage [V]	Min. Voltage Pack [V]	Number of Packs	Number of Modules	Number of Battery Cells
X6 M Competition	LI-ION	10.0	0.44	44.0	38.0	1	1	20

Model Name	Cell format	Min. Voltage Cell [V]	Weight [kg]	Specific Energy Density [Wh/kg]	Chemistry Identifier
X6 M Competition	pouch	1.90	11.6	38	Li MM(NMC) - Ti.F

12.4. Information on driver selectable modes

Drive Mode	Default Mode	Function
comfortable	no	comfortable setting for defined systems (e.g. climatic control, gas pedal progression)
sporty	no	sporty setting for defined systems (e.g. steering, gas pedal progression, shift points, less pure electric drive, e-boost)

Transmission Mode	Default Mode	Function
comfortable	no	standard comfortable vehicle gear operation
sparty	no	sparty setting for shift points

12.5. Modes used for EDV Testing

Test EDV:

VID	CFG	Fuel	FTP	HWY	US06	SC03	Cold CO
9M38654	00	T3E10	RBMX10078322	RBMX10078323	RBMX10078324	RBMX10078325	RBMX10078329
9M38654	02	T2E0	RBMX10078332	RBMX10078333	---	---	---

Drive Mode
<p>T3E10 EDV testing is done in drive mode "Sport+" (sparty) and transmission mode "D3" (sparty). This is the worst case combination with highest engine revolutions.</p> <p>T2E0 EDV testing is done in both best case and worst case configuration. Best case testing is done in drive mode "Efficient" (Efficient) and transmission mode "D1" (comfortable). This represents the best case mode. Worst case testing is done in drive mode "Sport+" (sparty) and transmission mode "D3" (sparty). This is the worst case combination with highest engine revolutions.</p>

13. Projected Sales

Refer to Common Section for Model Year 2027

14. Request for certification

We herewith apply for the Federal Certificate of conformity for the Test Group VBMXT04.4S6M.

The mentioned Test Group complies with all applicable regulations contained in 40 Code of Federal Regulations Part 85 and Part 86.



Dr. Bernd Ofner

15. Other Information

15.1. Vehicle Emission Control Information Label

Label according to certification requirements in 40 CFR § 86.1807-01.

The VECI label is attached to the engine hood.

Refer to Section 17, Attachment

Carline	Model Name	VECI Label
294	X6 M Competition	see attachment: 03VE-VS6M-01

15.2. Fuel Tank Temperature Profile

Fuel Tank Temperature Profile according to certification requirements in 40 CFR § 86.129-94(d).

Refer to Section 17, Attachment

Carline	Model Name	Evaporative Group	FTTP
294	X6 M Competition	VBMXR0180G05	see attachment: FTTP-0G05-02

17. Attachment

- | | | |
|------|--|--|
| 17.1 | Fuel Tank Temperature Profile | see attachment: FTTP-0G05-02 |
| 17.2 | VECI Label | see attachment: 03VE-VS6M-01 |
| 17.3 | Litmus Check | see attachment: 03LC-0S6M-01 |
| 17.4 | Certification Summary Information Report | see attachment:
CSI-VBMXT04.4S6M-VBMXR0180G05 |

Test Vehicle Data

Ambient Conditions

Test Data

Vehicle Type:	X7 xDrive40i	Weather:	sunny	Date of test:	07/12/2019
Mileage:	124011 mi	clouds:	< 25 %	Engine start:	16:10
Fuel tank volume	83.0 L	Wind speed:	< 15 mph	Measure start:	16:10
Fuel volume:	33.2 L	Ambient temp:		Measure stop:	11:19
		Start:	107 °F	Test track:	Exponent Phoenix USA
		delta:	1 °F		
		Surface temperature:	100 %		

Time [s]	Fuel Temp 1 [°F]	Fuel Temp 2 [°F]	Fuel Temp Average [°F]	Fuel Temp Average Correctet (to95°F) [°F]	Vapor Temp [°F]	Tank pressure [in H ₂ O]
0	102,5	102,2	102,3	95,0	102,8	0,5
30	102,5	102,2	102,4	95,0	102,8	0,5
60	102,6	102,3	102,4	95,1	102,8	0,2
90	102,6	102,3	102,5	95,1	102,9	-0,8
120	102,6	102,4	102,5	95,2	102,9	-1,1
150	102,7	102,4	102,6	95,2	102,9	-0,9
180	102,7	102,5	102,6	95,3	102,9	-0,9
210	102,8	102,6	102,7	95,4	103,0	-1,3
240	102,9	102,6	102,8	95,4	103,0	-1,2
270	103,0	102,7	102,9	95,5	103,1	-0,9
300	103,1	102,8	102,9	95,6	103,1	0,1
330	103,1	102,9	103,0	95,7	103,2	0,0
360	103,2	103,0	103,1	95,8	103,3	-0,5
390	103,4	103,1	103,2	95,9	103,4	-0,3
420	103,5	103,3	103,4	96,1	103,6	-0,5
450	103,7	103,4	103,6	96,2	103,8	-0,6
480	103,8	103,6	103,7	96,4	104,0	0,2
510	104,0	103,7	103,9	96,5	104,2	-1,3
540	104,1	103,8	104,0	96,7	104,4	-1,7
570	104,2	103,9	104,1	96,7	104,5	-1,4
600	104,3	104,1	104,2	96,9	104,7	-2,6
630	104,4	104,2	104,3	97,0	104,9	-1,4
660	104,6	104,3	104,5	97,1	105,0	-2,0
690	104,8	104,5	104,6	97,3	105,2	-1,0
720	104,9	104,7	104,8	97,5	105,4	-1,4
750	105,1	104,9	105,0	97,7	105,6	-0,6
780	105,3	105,0	105,1	97,8	105,7	-1,9
810	105,4	105,2	105,3	98,0	105,8	-1,5
840	105,6	105,4	105,5	98,1	106,0	-0,7
870	105,8	105,5	105,7	98,3	106,2	-2,9
900	106,0	105,7	105,8	98,5	106,5	-2,9
930	106,1	105,9	106,0	98,7	106,6	-3,1
960	106,2	106,0	106,1	98,8	106,6	-2,3

990	106,4	106,2	106,3	98,9	106,6	-1,7
1020	106,5	106,3	106,4	99,1	106,8	-1,3
1050	106,7	106,5	106,6	99,3	107,1	-1,2
1080	106,9	106,7	106,8	99,4	107,4	-1,2
1110	107,1	106,8	106,9	99,6	107,5	-2,2
1140	107,2	107,0	107,1	99,8	107,5	-1,1
1170	107,4	107,2	107,3	100,0	107,6	-1,3
1200	107,6	107,4	107,5	100,1	107,7	-2,1
1230	107,7	107,5	107,6	100,3	107,8	-1,8
1260	107,9	107,7	107,8	100,4	107,9	-1,7
1290	108,0	107,8	107,9	100,6	108,2	-2,9
1320	108,2	108,0	108,1	100,7	108,5	-1,0
1350	108,3	108,1	108,2	100,9	108,8	-1,5
1380	108,5	108,3	108,4	101,1	109,1	-0,6
1410	108,7	108,5	108,6	101,2	109,1	-0,3
1440	108,9	108,7	108,8	101,4	109,1	-0,6
1470	109,0	108,8	108,9	101,6	109,1	-0,6
1500	109,2	109,0	109,1	101,7	109,3	-0,6
1530	109,3	109,1	109,2	101,9	109,5	-0,3
1560	109,4	109,2	109,3	102,0	109,8	-1,1
1590	109,6	109,4	109,5	102,2	110,0	-0,8
1620	109,7	109,6	109,7	102,3	110,2	-1,9
1650	109,9	109,8	109,9	102,5	110,3	-2,4
1680	110,1	110,0	110,1	102,7	110,5	-1,3
1710	110,3	110,2	110,3	102,9	110,7	-1,1
1740	110,5	110,4	110,4	103,1	110,9	-0,9
1770	110,7	110,5	110,6	103,3	111,1	-0,9
1800	110,9	110,7	110,8	103,5	111,4	-1,2
1830	111,0	110,9	111,0	103,6	111,8	-1,4
1860	111,2	111,1	111,1	103,8	112,2	-0,4
1890	111,4	111,2	111,3	104,0	112,4	-0,4
1920	111,5	111,4	111,5	104,1	112,7	-1,6
1950	111,7	111,6	111,6	104,3	113,0	-0,5
1980	111,9	111,7	111,8	104,5	113,3	-0,1
2010	112,1	111,9	112,0	104,7	113,4	-0,9
2040	112,2	112,1	112,2	104,8	113,3	-1,3
2070	112,4	112,3	112,4	105,0	113,1	-0,6
2100	112,6	112,5	112,6	105,2	113,0	-0,3
2130	112,8	112,7	112,8	105,4	113,0	-0,3
2160	113,0	112,9	112,9	105,6	113,3	0,0
2190	113,2	113,0	113,1	105,8	113,5	0,1
2220	113,3	113,2	113,2	105,9	113,7	-1,3
2250	113,5	113,3	113,4	106,1	113,8	-2,0
2280	113,6	113,5	113,6	106,2	114,0	-0,9
2310	113,8	113,7	113,7	106,4	114,4	-0,3
2340	114,0	113,8	113,9	106,6	114,7	-0,2
2370	114,2	114,0	114,1	106,8	115,0	-0,3
2400	114,4	114,2	114,3	107,0	115,2	-1,1
2430	114,5	114,4	114,5	107,1	115,5	-1,0
2460	114,7	114,5	114,6	107,3	115,6	-0,2
2490	114,9	114,7	114,8	107,5	115,6	-0,3
2520	115,0	114,9	115,0	107,6	115,6	-1,2
2550	115,2	115,1	115,1	107,8	115,5	-0,6
2580	115,4	115,2	115,3	108,0	115,6	-0,5
2610	115,6	115,4	115,5	108,2	115,8	-0,3
2640	115,7	115,6	115,6	108,3	116,0	-1,0

2670	115,9	115,7	115,8	108,5	116,1	-0,6
2700	116,0	115,8	115,9	108,6	116,2	-0,4
2730	116,2	116,0	116,1	108,7	116,3	-0,5
2760	116,3	116,1	116,2	108,9	116,4	-0,2
2790	116,4	116,2	116,3	109,0	116,5	-0,3
2820	116,5	116,4	116,5	109,1	116,6	-0,3
2850	116,7	116,5	116,6	109,3	116,8	-0,4
2880	116,8	116,6	116,7	109,4	116,9	-1,5
2910	116,9	116,7	116,8	109,5	117,1	-0,8
2940	117,0	116,9	116,9	109,6	117,2	-0,3
2970	117,2	117,0	117,1	109,7	117,4	-0,3
3000	117,3	117,1	117,2	109,9	117,7	0,1
3030	117,4	117,3	117,4	110,0	118,0	0,9
3060	117,6	117,4	117,5	110,2	118,1	1,3
3090	117,7	117,6	117,6	110,3	118,2	0,9
3120	117,8	117,7	117,8	110,4	118,4	1,2
3150	118,0	117,8	117,9	110,6	118,7	0,8
3180	118,1	118,0	118,0	110,7	119,0	1,1
3210	118,3	118,1	118,2	110,8	119,2	0,3
3240	118,4	118,2	118,3	111,0	119,3	-0,5
3270	118,5	118,4	118,4	111,1	119,4	-0,4
3300	118,7	118,5	118,6	111,3	119,6	1,0
3330	118,9	118,7	118,8	111,4	120,0	0,8
3360	119,0	118,8	118,9	111,6	120,3	0,0
3390	119,1	119,0	119,0	111,7	120,5	0,5
3420	119,3	119,1	119,2	111,8	120,7	0,2
3450	119,4	119,2	119,3	112,0	120,8	0,1
3480	119,5	119,3	119,4	112,1	121,0	0,2
3510	119,6	119,5	119,6	112,2	121,0	-0,2
3540	119,8	119,6	119,7	112,4	121,0	-0,2
3570	119,9	119,7	119,8	112,5	121,0	0,2
3600	120,1	119,9	120,0	112,6	121,2	-0,1
3630	120,2	120,0	120,1	112,7	121,3	0,9
3660	120,3	120,1	120,2	112,9	121,2	-0,1
3690	120,4	120,2	120,3	113,0	121,2	-0,7
3720	120,5	120,3	120,4	113,1	121,3	0,1
3750	120,6	120,5	120,6	113,2	121,6	0,5
3780	120,8	120,6	120,7	113,3	121,7	-1,4
3810	120,9	120,7	120,8	113,4	121,8	-0,3
3840	120,9	120,8	120,9	113,5	121,9	-0,3
3870	121,0	120,9	121,0	113,6	122,0	-1,0
3900	121,1	121,0	121,1	113,7	122,3	1,3
3930	121,3	121,1	121,2	113,8	122,6	-0,1
3960	121,4	121,2	121,3	114,0	122,8	0,4
3990	121,5	121,3	121,4	114,1	123,0	0,1
4020	121,6	121,4	121,5	114,2	123,1	1,0
4050	121,7	121,5	121,6	114,3	123,2	0,7
4080	121,8	121,6	121,7	114,4	123,4	0,5
4110	122,0	121,8	121,9	114,5	123,4	-0,3
4140	122,1	121,9	122,0	114,6	123,4	-0,1
4170	122,2	122,0	122,1	114,7	123,4	0,5
4200	122,2	122,1	122,2	114,8	123,5	0,5
4230	122,3	122,1	122,2	114,9	123,7	0,5
4260	122,4	122,2	122,3	115,0	124,0	0,6
4290	122,5	122,3	122,4	115,1	124,2	0,6
4320	122,6	122,4	122,5	115,1	124,5	0,6

BMW

Designation

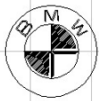
Attachment

**VECI Label LDT, VBMXT04.4S6M,
VBMXR0180G05**

Date: 03.12.2025

03VE-VS6M-01

DRAFT - Inverted Representation



Bayerische Motoren Werke AG

VEHICLE EMISSION CONTROL INFORMATION

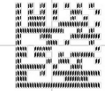
Conforms to regulations: MY 2027

U.S. EPA: Interim Tier 4 - Bin 70 LDT CA OBD II
EVAP: Tier 3 - 500 LDT Fuel: gasoline

California: Conforms to U.S. EPA regulations CA OBD II
and is certified for sale in California Fuel: gasoline

No adjustments needed. 2WU-TWC, 2TWC, 2WR-HO2S,
2HO2S, DFI, 2TC, 2CAC

Group: VBMXT04.4S6M
Evap: VBMXR0180G05



8 898 377

Original representation

Base: Black
Characters: Silver

Enclosure to Certification Summary Information Report

Test	Test Number	Test Procedure	Man FE	FE Bag1	FE Bag2	FE Bag3	FE Bag4
FTP75	RBMX10078322	31	13.3	12.9	12.5	15.1	12.8
HWFET	RBMX10078323	3	22.3				
US06	RBMX10078324	90		9.9	19.5		
SC03	RBMX10078325	95		11.2			
Cold CO	RBMX10078329	11		10.6	11.6	14.0	

Model Specific Calculation (5 Cycle)

City	[mi/gallon]
Start FC	0.0045
Start Fuel 75	0.0480
Start Fuel 20	0.0825
Running FC	0.0790
Label City (5 Cycle)	10.8

Highway	[mi/gallon]
Start FC	0.0003
Start Fuel 75	0.0480
Start Fuel 20	0.0825
Running FC	0.0511
Label Highway (5 Cycle)	17.6

Derived Calculation (2 Cycle)

Label City (2 Cycle)	11.0
Theshold (96% Derived MPG - 2 Cycle)	10.6

Label Highway (2 Cycle)	16.3
Theshold (95% Derived MPG - 2 Cycle)	15.5

Model Specific Calculation Label City (5 Cycle)	Theshold City (96% Derived MPG - 2 Cycle)	Model Specific Calculation Label Highway (5 Cycle)	Theshold HWY (95% Derived MPG 2 Cycle)
10.8	10.6	17.6	15.5

Certification Summary Information Report

Manufacturer	BMW	Manufacturer Code	BMX
Test Group	VBMXT04.4S6M	Evaporative/Refueling Family	VBMXR0180G05
Certificate Number	--	CARB Executive Order #	--
Certificate Issue Date	--	Certificate Revision Date	--
Certificate Effective Date	--	Conditional Certificate	--
CSI Revision #	--	CSI Submission/Revision Date	02/05/2026 08:05:58 AM
Model Year	2027		

Certification Summary Information Report

Test Group	VBMXT04.4S6M	Evaporative/Refueling Family	VBMXR0180G05
Test Group Information			
CSI Type	Update for Correction	Running Change Reference Number	--
GHG Exempt Status	Not Exempt		
Drive Sources and Fuel(s)			
Drive Source #1:	Combustion Engine		
	Fuel	Basic Fuel Metering System	Lean Burn Strategy Indicator
	Gasoline	Spark Ignition Direct fuel injection	No
Drive Source #2:	Electric Motor		
	Fuel	Basic Fuel Metering System	Lean Burn Strategy Indicator
	Electricity	--	--
Hybrid Indicator	Yes		
Multiple Fuel Storage	--	Rechargeable Energy Storage System Indicator	Yes
Multiple Fuel Combustion	--	Off-board Charge Capable Indicator	No
Fuel Cell Indicator	No	EPA Vehicle Class	LDT4
Federal Clean Fuel Vehicle	No	Federal Clean Fuel Vehicle Standard	--
Federal Clean Fuel Vehicle ILEV	No	California Partial Zero Emissions Vehicle Indicator	--
Durability Group Name	VBMXHHGVNV39	Durability Group Equivalency Factor	1
Reduced Fee Test Group	No	Certification Region Code(s)	FA
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	--
SFTP LEV-III Composite Compliance Indicator	No		
OBD Compliance Type	CARB	OBD Demonstration Vehicle Test Group	VBMXT04.4S6M
Test Group OBD Compliance Level	Partial - with deficiencies and penalty	Number of Test Group OBD Deficiencies	6
OBD Deficiencies Comments	E-26-017		
Mfr Test Group Comments	--		
Mfr Exhaust / Evap Standards Comments	--		

Certification Summary Information Report

Test Group	VBMXT04.4S6M	Evaporative/Refueling Family	VBMXR0180G05				
Evaporative/Refueling Family Information							
Evaporative Summary Information Type	New	Submission/Correction Date	01/08/2026 08:14:58 AM				
Integrated ORVR?	Yes	Fuel(s)	Gasoline				
Multiple Fuel Storage	--						
Bladder Fuel Tank?	No						
Fuel Tank Material	Plastic	Fuel Tank Material Description	HDPE				
Fill Pipe Seal Type	Liquid seal						
Air Intake System Vapor Storage Device?	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)	180	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	Yes	Applicability of Evaporative Canister Bleed Test	50 State				
Evaporative Canister Bleed Test Comments	--						
CARB Fuel Only (Rig) Test Indicator	No	Applicability of CARB Fuel Only (Rig) Test	--				
CARB Fuel Only (Rig) Test Comments	--						
Models Covered by this Certificate							
Carline Manufacturer	Division	Carline	Certification Region Code(s)	Drive System	Trans - Type	- # of Gears	Trans - Lockup
BMW	1 - BMW	294 - X6 M Competition	Federal	All Wheel Drive	Semi-Automatic	8	Yes
Engine Description							
Hybrid Type	IC Engine/Electric Motor	Hybrid Description	Fuel Economy Guide Category MHEV (Mild Hybrid Electric Vehicle)				
Engine Type	4-Stroke Spark Ignition	Mfr Engine Description	--				
Engine Block Arrangement	V-shaped engine	Mfr Engine Block Arrangement Description	--				
Camless Valvetrain Indicator	No	Oil Viscosity/Classification	0W30				
Number of Cylinders/Rotors	8	Mechanically Variable Compression Ratio Indicator	N				

Certification Summary Information Report

Test Group	VBMXT04.4S6M	Evaporative/Refueling Family	VBMXR0180G05	
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	Palladium + Rhodium	Ceramic	Monolith
3	Three-way catalyst	Palladium + Rhodium	Metal	Monolith
4	Three-way catalyst	Palladium + Rhodium	Metal	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)	4.4	Engine Rated Horsepower	617	
Number of Inlet Valves Per Cylinder	2	Number of Exhaust Valves Per Cylinder	2	
Air Aspiration Method	Turbocharged	Number of Air Aspiration Devices	2	
Air Aspiration Device Configuration	Parallel	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	Variable Valve Timing at inlet and outlet valves			
Variable Valve Lift?	Yes			
Variable Valve Lift System Description	Variable Valve Lift at inlet valves			
Number of Knock Sensors	4	Number of Air/Fuel Sensors	4	
Air/Fuel Sensor # 1 Type	Air fuel	Air/Fuel Sensor # 1 Description	--	
Air/Fuel Sensor # 2 Type	Heated oxygen	Air/Fuel Sensor # 2 Description	--	
Air/Fuel Sensor # 3 Type	Air fuel	Air/Fuel Sensor # 3 Description	--	
Air/Fuel Sensor # 4 Type	Heated oxygen	Air/Fuel Sensor # 4 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	--	Air Injection Type if 'Other'	--	
Mfr Engine Configuration Comments	--			

Certification Summary Information Report

Test Group		VBMXT04.4S6M				Evaporative/Refueling Family		VBMXR0180G05		
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	RBMX10078322	RBMX10078324	RBMX10078325	RBMX10078329	RBMX10078323	12.8	228.2	24.1	286.1	--
Electricity	--	--	--	--	--	--	--	--	--	--
SFTP LEV-III Official Test Numbers										
Test Group Fuel	FTP	US06	SC03							
Gasoline	RBMX10078322	RBMX10078324	RBMX10078325							
Hybrid Electric Vehicle And Fuel Cell Information										
Rechargeable Energy Storage System	Battery(s)	Rechargeable Energy Storage System, if Other				--				
Battery Type	Lithium Ion	Number of Battery Packs				1				
Total Voltage of Battery Packs	44	Battery Energy Capacity				10.0				
Battery Specific Energy	38	Battery Charger Type				On-Board				
Number of Capacitors	--	Capacitor Rating (In Farads)				--				
Mfr Capacitor Comments	--									
Hydraulic System Description	--									
Regenerative Braking Type	Electrical Regen Brake	Driver Controlled Regenerative Braking				No				
Regenerative Braking Source	Both									
Mfr Regenerative Braking Description	--									
Drive Motor(s)/Generator(s)	1	Rated Motor/Generator Power				9				
Motor/Generator Type 1	PMSM									
Mfr Fuel Cell Description	--	Usable H2 Fill Capacity (kg)				--				
Fuel Cell On-Board H2 Storage Capacity (kg)	--									
Mfr Hybrid Electric/ Electric Vehicle Comments	Starter Generator Engine with 48V Technology; Motor/Generator Type: permanent magnet synchronous machine (PMSM)									

Certification Summary Information Report

Test Group	VBMXT04.4S6M	Evaporative/Refueling Family	VBMXR0180G05									
Emission Data Vehicle Information												
Vehicle ID / Configuration	9M38654 / 0	Manufacturer Vehicle Configuration Number	0									
Original Test Group Name	RBMXT04.4S6M	Original Evaporative/Refueling Family	RBMXR0180G05									
Original Test Vehicle Model Year	2024											
Vehicle Model												
Represented Test Vehicle Make	BMW	Represented Test Vehicle Model	X5 M Competition									
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>Electric Motor</td> <td>Electricity</td> </tr> <tr> <td>2</td> <td>Combustion Engine</td> <td>Gasoline</td> </tr> </tbody> </table>				Drive Source and Fuel#	Drive Source	Fuel	1	Electric Motor	Electricity	2	Combustion Engine	Gasoline
Drive Source and Fuel#	Drive Source	Fuel										
1	Electric Motor	Electricity										
2	Combustion Engine	Gasoline										
Hybrid Indicator	Yes											
Multiple Fuel Storage	--	Multiple Fuel Combustion	--									
Fuel Cell Indicator	No	Rechargeable Energy Storage System Indicator	Yes									
Rechargeable Energy Storage System	Battery(s)	Rechargeable Energy Storage System, if 'Other'	--									
Off-board charge Capable Indicator	No											
Odometer Correction -- Initial	0	Odometer Correction Factor	1									
Odometer Correction Sign	- = System Miles is equal to (Test odometer reading - Initial system miles) * Correction factor											
Odometer Correction Units	Miles											
Engine Code	S68B44T0F95X	Rated Horsepower	617									
Displacement (liters)	4.4											
Air Aspiration Method	Turbocharged	Air Aspiration Method, if 'Other'										
Number of Air Aspiration Devices	2	Air Aspiration Device Configuration	Parallel									
Charge Air Cooler Type	Liquid	Drive Mode While Testing	All Wheel Drive									
Shift Indicator Light Usage	Not equipped	Aged Emission Components	4,000 (mi)									
Curb Weight (lbs)	5498	Equivalent Test Weight (pounds)	6000									
GVWR (lbs)	6614	N/V Ratio	23.7									
Axle Ratio	3.15											
Transmission Type	Semi-Automatic	# of Transmission Gears	8									
Transmission Lockup	Yes	Creeper Gear	No									

Certification Summary Information Report

Test Group		VBMXT04.4S6M			Evaporative/Refueling Family			VBMXR0180G05
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	67.1	0.009	0.03284	0.2	0.332	0.02698	20	
Cold CO	74.5	0.01	0.03649	-16.2	0.465	0.0276	N/A	
US06	67.1	0.009	0.03284	0.2	0.332	0.02698	N/A	
Emission Control Device Comments	--							
Manufacturer Test Vehicle Comments	vi_9M38654_00_EDV_X5 M Competition_A_ETW-6000_RG10_MSA off_D3_Sport+							

Certification Summary Information Report

Test Group	VBMXT04.4S6M	Evaporative/Refueling Family	VBMXR0180G05
Test #	RBMX10078322	Test Procedure	31 - Federal fuel 3-day exhaust
Exhaust Test # for this Evap Test	--	Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)
Test Date	11/22/2022	Fuel	Gasoline
Fuel Batch ID	T10/87	Fuel Calibration Number	30
Vehicle Class	LDV/Passenger Car	DF Type	Mfr. Determined
Verify Test Lab ID	EETZ Emissions Lab		
E10 Evaporative Test Measurement Method	Calculated (1.08 x FID Total Hydrocarbons)		
Test Start Odometer Reading	3567	Odometer Units	K
4WD Test Dyno	Yes	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)	662.8185	--
FE BAG 1 (Bag 1 Fuel Economy)	12.9	12.9
CO2 BAG 2 (Bag 2 Carbon Dioxide)	685.6377	--
FE BAG 2 (Bag 2 Fuel Economy)	12.5	12.5
CO2 BAG 3 (Bag 3 Carbon Dioxide)	568.107	--
FE BAG 3 (Bag 3 Fuel Economy)	15.1	15.1
CO2 BAG 4 (Bag 4 Carbon Dioxide)	669.6205	--
FE BAG 4 (Bag 4 Fuel Economy)	12.8	12.8
METHANE (CH4 - Methane)	0.00185	--
CO (Carbon Monoxide)	0.403	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	0.289	--
DT-EER (Drive Trace Energy Economy Rating)	-0.328	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	0.413	--
MFR FE (Manufacturer Fuel Economy)	13.3	13.3
NOX (Nitrogen Oxide)	0.02456	--
N2O (Nitrous Oxide)	0.00113	--
HC-NM (Non-methane Hydrocarbon)	0.00711	--
NMOG (Non-methane organic gases)	0.00782	--
PM (Particulate Matter)	0.00072	--
HC-TOTAL (Total Hydrocarbon)	0.0088	--

Certification Summary Information Report

Test Group	VBMXT04.4S6M	Evaporative/Refueling Family	VBMXR0180G05
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Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE
Carbon-Related Exhaust Emissions	645	999

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	643.7885	--

Manufacturer Test Comments 01_FTP_9M38654_00_EDV_X5 M Competition_A_ETW-6000_RG10_MSA off_D3_Sport+

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	Other	CREE	999	--	--	--	0.3	--	999	--	--
Fed	120,000 miles	Other	METHANE	0.0018	--	--	--	0.0025	--	0.004	0.030	Pass
Fed	120,000 miles	Other	N2O	0.0011	--	--	--	0.0002	--	0.001	0.010	Pass
Fed	150,000 miles	Other	CO	0.40	--	--	--	0.19	--	0.6	1.7	Pass
Fed	150,000 miles	Other	CO-COMP	0.57	--	--	--	--	--	0.6	4.2	Pass
Fed	150,000 miles	Other	NMOG	0.0078	--	1.10	--	0.0057	--	0.014	999.999	Pass
Fed	150,000 miles	Other	NMOG+NOX	0.0324	--	--	--	--	--	0.040	0.070	Pass
Fed	150,000 miles	Other	NMOG+NOX-COMP	0.0355	--	--	--	--	--	0.036	0.070	Pass
Fed	150,000 miles	Other	NOX	0.0246	--	--	--	0.0014	--	0.026	999.999	Pass
Fed	150,000 miles	Other	PM	0.0007	--	--	--	0.0004	--	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

Test Group	VBMXT04.4S6M	Evaporative/Refueling Family	VBMXR0180G05
Test #	RBMX10078329	Test Procedure	11 - Cold CO
Exhaust Test # for this Evap Test	--	Test Fuel Type	28 - Cold CO E10 Regular Gasoline (Tier 3)
Test Date	12/08/2022	Fuel	Gasoline
Fuel Batch ID	COE10	Fuel Calibration Number	31
Vehicle Class	LDV/Passenger Car	DF Type	Mfr. Determined
Verify Test Lab ID	EETZ Emissions Lab		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	3820	Odometer Units	K
4WD Test Dyno	Yes	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)	806.1976	--
FE BAG 1 (Bag 1 Fuel Economy)	10.6	10.6
CO2 BAG 2 (Bag 2 Carbon Dioxide)	740.8305	--
FE BAG 2 (Bag 2 Fuel Economy)	11.6	11.6
CO2 BAG 3 (Bag 3 Carbon Dioxide)	614.395	--
FE BAG 3 (Bag 3 Fuel Economy)	14	14
METHANE (CH4 - Methane)	0.00425	--
CO (Carbon Monoxide)	0.6287	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	0.151	--
DT-EER (Drive Trace Energy Economy Rating)	-0.53	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	0.024	--
MFR FE (Manufacturer Fuel Economy)	11.9	11.9
HC-NM (Non-methane Hydrocarbon)	0.02616	--
HC-TOTAL (Total Hydrocarbon)	0.03021	--

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	719.6471	--

Manufacturer Test Comments

06_FTPCOLD_9M38654_00_EDV_X5 M Competition_A_ETW-6000_RG10_MSA off_D3_Sport+

Certification Summary Information Report

Test Group	VBMXT04.4S6M	Evaporative/Refueling Family	VBMXR0180G05
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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	Other	CO	0.63	--	--	--	0.06	--	0.7	12.5	Pass
Fed	120,000 miles	Other	HC-NM	0.03	--	--	--	0.00	--	0.0	0.5	Pass

Certification Summary Information Report

Test Group	VBMXT04.4S6M	Evaporative/Refueling Family	VBMXR0180G05
Test #	RBMX10078323	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	11/23/2022	Fuel	Gasoline
Fuel Batch ID	T10/87	Fuel Calibration Number	30
Vehicle Class	LDV/Passenger Car	DF Type	Mfr. Determined
Verify Test Lab ID	EETZ Emissions Lab		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	3591	Odometer Units	K
4WD Test Dyno	Yes	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)	0.00651	--
CO (Carbon Monoxide)	0.1854	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	-3.362	--
DT-EER (Drive Trace Energy Economy Rating)	-0.764	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	-4.446	--
MFR FE (Manufacturer Fuel Economy)	22.3	22.3
NOX (Nitrogen Oxide)	0.0016	--
HC-NM (Non-methane Hydrocarbon)	0.00614	--
NMOG (Non-methane organic gases)	0.00633	--
HC-TOTAL (Total Hydrocarbon)	0.01238	--

Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE
Carbon-Related Exhaust Emissions	385	999

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	385.0423	--

Manufacturer Test Comments

02_HWFET_9M38654_00_EDV_X5 M Competition_A_ETW-6000_RG10_MSA off_D3_Sport+

Certification Summary Information Report

Test Group		VBMXT04.4S6M				Evaporative/Refueling Family				VBMXR0180G05		
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	Other	CREE	999	--	--	--	0.3	--	999	--	--
Fed	150,000 miles	Other	NMOG	0.0063	--	1.03	--	0.0057	--	0.012	999.999	Pass
Fed	150,000 miles	Other	NMOG+NOX	0.0079	--	--	--	--	--	0.015	0.070	Pass
Fed	150,000 miles	Other	NOX	0.0016	--	--	--	0.0014	--	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	VBMXT04.4S6M	Evaporative/Refueling Family	VBMXR0180G05
Test #	RBMX10078324	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	11/23/2022	Fuel	Gasoline
Fuel Batch ID	T10/87	Fuel Calibration Number	30
Vehicle Class	LDV/Passenger Car	DF Type	Mfr. Determined
Verify Test Lab ID	EETZ Emissions Lab		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	3623	Odometer Units	K
4WD Test Dyno	Yes	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)	862.4078	--
FE BAG 1 (Bag 1 Fuel Economy)	9.9	9.9
CO2 BAG 2 (Bag 2 Carbon Dioxide)	440.4453	--
FE BAG 2 (Bag 2 Fuel Economy)	19.5	19.5
METHANE (CH4 - Methane)	0.00712	--
CO (Carbon Monoxide)	0.611	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	0.621	--
DT-EER (Drive Trace Energy Economy Rating)	-0.237	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	1.517	--
MFR FE (Manufacturer Fuel Economy)	16	16
NOX (Nitrogen Oxide)	0.00611	--
HC-NM (Non-methane Hydrocarbon)	0.01272	--
NMOG (Non-methane organic gases)	0.01311	--
PM (Particulate Matter)	0.00198	--
HC-TOTAL (Total Hydrocarbon)	0.01955	--

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	533.8868	--

Manufacturer Test Comments

03_US06_9M38654_00_EDV_X5 M Competition_A_ETW-6000_RG10_MSA off_D3_Sport+

Certification Summary Information Report

Test Group		VBMXT04.4S6M				Evaporative/Refueling Family				VBMXR0180G05		
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	Other	CO	0.61	--	--	--	0.19	--	0.8	999.9	Pass
Fed	150,000 miles	Other	NMOG	0.0131	--	1.03	--	0.0057	--	0.019	999.999	Pass
Fed	150,000 miles	Other	NOX	0.0061	--	--	--	0.0014	--	0.008	999.999	Pass
Fed	150,000 miles	Other	PM	0.0020	--	--	--	0.0004	--	0.002	0.006	Pass

Certification Summary Information Report

Test Group	VBMXT04.4S6M	Evaporative/Refueling Family	VBMXR0180G05
Test #	RBMX10078325	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	11/28/2022	Fuel	Gasoline
Fuel Batch ID	T10/87	Fuel Calibration Number	30
Vehicle Class	LDV/Passenger Car	DF Type	Mfr. Determined
Verify Test Lab ID	EETZ Emissions Lab		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	3692	Odometer Units	K
4WD Test Dyno	Yes	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)	0.00062	--
CO (Carbon Monoxide)	0.1792	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	-0.407	--
DT-EER (Drive Trace Energy Economy Rating)	-0.527	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	-0.344	--
MFR FE (Manufacturer Fuel Economy)	11.2	11.2
NOX (Nitrogen Oxide)	0.02609	--
HC-NM (Non-methane Hydrocarbon)	0.00542	--
NMOG (Non-methane organic gases)	0.00558	--
HC-TOTAL (Total Hydrocarbon)	0.00601	--

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	769.2162	--

Manufacturer Test Comments 04_SC03_9M38654_00_EDV_X5 M Competition_A_ETW-6000_RG10_MSA off_D3_Sport+

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	Other	CO	0.18	--	--	--	0.19	--	0.4	999.9	Pass
Fed	150,000 miles	Other	NMOG	0.0056	--	1.03	--	0.0057	--	0.011	999.999	Pass
Fed	150,000 miles	Other	NOX	0.0261	--	--	--	0.0014	--	0.028	999.999	Pass

Certification Summary Information Report

Test Group	VBMXT04.4S6M	Evaporative/Refueling Family	VBMXR0180G05									
Emission Data Vehicle Information												
Vehicle ID / Configuration	9M38654 / 2	Manufacturer Vehicle Configuration Number	0									
Original Test Group Name	RBMXT04.4S6M	Original Evaporative/Refueling Family	RBMXR0180G05									
Original Test Vehicle Model Year	2024											
Vehicle Model												
Represented Test Vehicle Make	BMW	Represented Test Vehicle Model	X5 M Competition									
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	0	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	S68B44T0F95X	Rated Horsepower	617									
Displacement (liters)	4.4											
Air Aspiration Method	Turbocharged	Air Aspiration Method, if 'Other'										
Number of Air Aspiration Devices	2	Air Aspiration Device Configuration	Parallel									
Charge Air Cooler Type	Liquid	Drive Mode While Testing	All Wheel Drive									
Shift Indicator Light Usage	Not equipped	Aged Emission Components	4,000 (mi)									
Curb Weight (lbs)	5498	Equivalent Test Weight (pounds)	6000									
GVWR (lbs)	6614	N/V Ratio	23.7									
Axle Ratio	3.15											
Transmission Type	Semi-Automatic	# of Transmission Gears	8									
Transmission Lockup	Yes	Creeper Gear	No									

Certification Summary Information Report

Test Group	VBMXT04.4S6M	Evaporative/Refueling Family	VBMXR0180G05
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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	67.1	0.009	0.03284	0.2	0.332	0.02698	20
US06	67.1	0.009	0.03284	0.2	0.332	0.02698	N/A

Emission Control Device Comments

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Manufacturer Test Vehicle Comments

vi_9M38654_02_FEDV_X5 M Competition_A_ETW-6000_RG11_MSA off_D3_Sport+

Certification Summary Information Report

Test Group	VBMXT04.4S6M	Evaporative/Refueling Family	VBMXR0180G05
Test #	RBMX10078332	Test Procedure	31 - Federal fuel 3-day exhaust
Exhaust Test # for this Evap Test	--	Test Fuel Type	61 - Tier 2 Cert Gasoline
Test Date	12/06/2022	Fuel	Gasoline
Fuel Batch ID	T2/E0	Fuel Calibration Number	29
Vehicle Class	LDV/Passenger Car	DF Type	Mfr. Determined
Verify Test Lab ID	EETZ Emissions Lab		
E10 Evaporative Test Measurement Method	Calculated (1.08 x FID Total Hydrocarbons)		
Test Start Odometer Reading	3751	Odometer Units	K
4WD Test Dyno	Yes	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)	662.0493	--
FE BAG 1 (Bag 1 Fuel Economy)	13.2	13.2
CO2 BAG 2 (Bag 2 Carbon Dioxide)	682.4946	--
FE BAG 2 (Bag 2 Fuel Economy)	12.8	12.8
CO2 BAG 3 (Bag 3 Carbon Dioxide)	564.4917	--
FE BAG 3 (Bag 3 Fuel Economy)	15.5	15.5
CO2 BAG 4 (Bag 4 Carbon Dioxide)	662.2321	--
FE BAG 4 (Bag 4 Fuel Economy)	13.2	13.2
METHANE (CH4 - Methane)	0.00282	--
CO (Carbon Monoxide)	0.6546	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	-0.492	--
DT-EER (Drive Trace Energy Economy Rating)	-0.342	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	-0.568	--
MFR FE (Manufacturer Fuel Economy)	13.7	13.7
NOX (Nitrogen Oxide)	0.01261	--
N2O (Nitrous Oxide)	0.00082	--
HC-NM (Non-methane Hydrocarbon)	0.01272	--
NMOG (Non-methane organic gases)	0.01323	--
HC-TOTAL (Total Hydrocarbon)	0.01534	--

Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE
Carbon-Related Exhaust Emissions	641	641

Certification Summary Information Report

Test Group	VBMXT04.4S6M	Evaporative/Refueling Family	VBMXR0180G05
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Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	639.7996	--

Manufacturer Test Comments 01_FTP_9M38654_02_FEDV_X5 M Competition_A_ETW-6000_RG11_MSA off_D3_Sport+

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	Other	CREE	641	--	--	--	0.3	--	641	--	--
Fed	120,000 miles	Other	METHANE	0.0028	--	--	--	0.0025	--	0.005	0.030	Pass
Fed	120,000 miles	Other	N2O	0.0008	--	--	--	0.0002	--	0.001	0.010	Pass
Fed	150,000 miles	Other	CO	0.65	--	--	--	0.19	--	0.8	1.7	Pass
Fed	150,000 miles	Other	NMOG	0.0132	--	1.10	--	0.0057	--	0.019	999.999	Pass
Fed	150,000 miles	Other	NMOG+NOX	0.0258	--	--	--	--	--	0.033	0.070	Pass
Fed	150,000 miles	Other	NOX	0.0126	--	--	--	0.0014	--	0.014	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	VBMXT04.4S6M	Evaporative/Refueling Family	VBMXR0180G05
Test #	RBMX10078333	Test Procedure	3 - HWFE
Exhaust Test # for this Evap Test	--	Test Fuel Type	61 - Tier 2 Cert Gasoline
Test Date	12/06/2022	Fuel	Gasoline
Fuel Batch ID	T2/E0	Fuel Calibration Number	29
Vehicle Class	LDV/Passenger Car	DF Type	Mfr. Determined
Verify Test Lab ID	EETZ Emissions Lab		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	3775	Odometer Units	K
4WD Test Dyno	Yes	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)	0.00598	--
CO (Carbon Monoxide)	0.2474	--
DT-ASCR (Drive Trace Absolute Speed Change Rating)	0.774	--
DT-EER (Drive Trace Energy Economy Rating)	-0.197	--
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	0.844	--
MFR FE (Manufacturer Fuel Economy)	22.8	22.8
NOX (Nitrogen Oxide)	0.00137	--
HC-NM (Non-methane Hydrocarbon)	0.00654	--
NMOG (Non-methane organic gases)	0.00673	--
HC-TOTAL (Total Hydrocarbon)	0.01227	--

Test Result Name	Unrounded Test Result	Verify Calculated CREE/OPT-CREE
Carbon-Related Exhaust Emissions	383	383

Test Result Name	Unrounded Test Result	Verify Calculated CO2
Carbon dioxide	383.4459	--

Manufacturer Test Comments

02_HWFET_9M38654_02_FEDV_X5 M Competition_A_ETW-6000_RG11_MSA off_D3_Sport+

Certification Summary Information Report

Test Group		VBMXT04.4S6M				Evaporative/Refueling Family				VBMXR0180G05		
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	Other	CREE	383	--	--	--	0.3	--	383	--	--
Fed	150,000 miles	Other	NMOG	0.0067	--	1.03	--	0.0057	--	0.012	999.999	Pass
Fed	150,000 miles	Other	NMOG+NOX	0.0081	--	--	--	--	--	0.015	0.070	Pass
Fed	150,000 miles	Other	NOX	0.0014	--	--	--	0.0014	--	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	VBMXT04.4S6M	Evaporative/Refueling Family	VBMXR0180G05									
Emission Data Vehicle Information												
Vehicle ID / Configuration	L084470 / 0	Manufacturer Vehicle Configuration Number	0									
Original Test Group Name	MBMXT03.0G0X	Original Evaporative/Refueling Family	MBMXR0180G05									
Original Test Vehicle Model Year	2021											
Vehicle Model												
Represented Test Vehicle Make	BMW	Represented Test Vehicle Model	X7 xDrive40i									
Leak Family Details												
Leak Family Identifier	--	Leak Family Name	--									
Drive Sources and Fuel System Details												
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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	0	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	B58B30M1G07X1	Rated Horsepower	335									
Displacement (liters)	3											
Air Aspiration Method	Turbocharged	Air Aspiration Method, if 'Other'										
Number of Air Aspiration Devices	1	Air Aspiration Device Configuration	Single									
Charge Air Cooler Type	Air	Drive Mode While Testing	All Wheel Drive									
Shift Indicator Light Usage	Not equipped	Aged Emission Components	4,000 (mi)									
Curb Weight (lbs)	5456	Equivalent Test Weight (pounds)	6000									
GVWR (lbs)	7022	N/V Ratio	27.6									
Axle Ratio	3.63											
Transmission Type	Semi-Automatic	# of Transmission Gears	8									
Transmission Lockup	Yes	Creeper Gear	No									

Certification Summary Information Report

Test Group	VBMXT04.4S6M			Evaporative/Refueling Family			VBMXR0180G05	
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	67.3	-0.318	0.03447	13.1	-0.318	0.03447	18.3	
Cold CO	0	0	0	0	0	0	N/A	
US06	67.3	-0.318	0.03447	13.1	-0.318	0.03447	N/A	
Emission Control Device Comments	--							
Manufacturer Test Vehicle Comments	EVAP EDV X7 xDrive40i, AT, MY21							
Test #	MBMX10064376			Test Procedure	23 - 2-day evap			
Exhaust Test # for this Evap Test	MBMX10064375			Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)			
Test Date	03/10/2020			Fuel	Gasoline			
Fuel Batch ID	T10/87			Fuel Calibration Number	14			
Vehicle Class	N/A			DF Type	Mfr. Determined			
Verify Test Lab ID	EETZ Emissions Lab							
E10 Evaporative Test Measurement Method	Calculated (1.08 x FID Total Hydrocarbons)							
Test Start Odometer Reading	6778			Odometer Units	K			
4WD Test Dyno	Yes			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 (Total Hydrocarbon)		0.18155			--			
HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)		0.196074			--			
Manufacturer Test Comments	EVAP EDV - 2Day, X7 xDrive40i							
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	0.1961	0.0594	0.256	0.500	Pass

Certification Summary Information Report

Test Group	VBMXT04.4S6M	Evaporative/Refueling Family	VBMXR0180G05
Test #	MBMX10064490	Test Procedure	34 - Federal fuel 3-day evap
Exhaust Test # for this Evap Test	MBMX10064489	Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)
Test Date	04/02/2020	Fuel	Gasoline
Fuel Batch ID	T10/87	Fuel Calibration Number	14
Vehicle Class	N/A	DF Type	Mfr. Determined
Verify Test Lab ID	EETZ Emissions Lab		
E10 Evaporative Test Measurement Method	Calculated (1.08 x FID Total Hydrocarbons)		
Test Start Odometer Reading	6850	Odometer Units	K
4WD Test Dyno	Yes	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 (Total Hydrocarbon)	0.170407	--
HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)	0.184039	--

Manufacturer Test Comments EVAP EDV - 3Day, X7 xDrive40i, MY21

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	0.1840	0.0000	0.184	0.500	Pass

Certification Summary Information Report

Test Group	VBMXT04.4S6M	Evaporative/Refueling Family	VBMXR0180G05
Test #	MBMX10063966	Test Procedure	24 - Federal fuel refueling test (ORVR)
Exhaust Test # for this Evap Test	MBMX10063963	Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)
Test Date	03/05/2020	Fuel	Gasoline
Fuel Batch ID	T10/87	Fuel Calibration Number	14
Vehicle Class	N/A	DF Type	Mfr. Determined
Verify Test Lab ID	EETZ Emissions Lab		
E10 Evaporative Test Measurement Method	Calculated (1.08 x FID Total Hydrocarbons)		
Test Start Odometer Reading	6721	Odometer Units	K
4WD Test Dyno	Yes	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 (Hydrocarbon for Running Loss and ORVR)	0.0429	--

Manufacturer Test Comments EVAP EDV, ORVR, X7 xDrive40i, MY21

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	0.043	0.011	0.05	0.20	Pass

Certification Summary Information Report

Test Group	VBMXT04.4S6M	Evaporative/Refueling Family	VBMXR0180G05
Test #	MBMX10064491	Test Procedure	32 - Federal Fuel Running Loss
Exhaust Test # for this Evap Test	MBMX10064489	Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)
Test Date	04/02/2020	Fuel	Gasoline
Fuel Batch ID	T10/87	Fuel Calibration Number	14
Vehicle Class	N/A	DF Type	Mfr. Determined
Verify Test Lab ID	EETZ Emissions Lab		
E10 Evaporative Test Measurement Method	Calculated (1.08 x FID Total Hydrocarbons)		
Test Start Odometer Reading	6850	Odometer Units	K
4WD Test Dyno	Yes	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 (Hydrocarbon for Running Loss and ORVR)	0.011978	--
HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)	0.012937	--

Manufacturer Test Comments EVAP EDV - RL, X7 xDrive40i, MY21

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	0.013	0.000	0.01	0.05	Pass

Certification Summary Information Report

Test Group	VBMXT04.4S6M	Evaporative/Refueling Family	VBMXR0180G05
Test #	MBMX10063967	Test Procedure	65 - Evap Canister Bleed Test
Exhaust Test # for this Evap Test	--	Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)
Test Date	02/27/2020	Fuel	Gasoline
Fuel Batch ID	T10/87	Fuel Calibration Number	14
Vehicle Class	N/A	DF Type	Mfr. Determined
Verify Test Lab ID	EETZ Emissions Lab		
E10 Evaporative Test Measurement Method	Calculated (1.08 x FID Total Hydrocarbons)		
Test Start Odometer Reading	6703	Odometer Units	M
4WD Test Dyno	Yes	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes	Road Speed Fan Usage	Yes
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)		

Test Results

Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value (miles per gallon)
HC-TOTAL (Total Hydrocarbon)	0.00987	--
HC-TOTAL-EQUIV (Total Hydrocarbon equivalent - Evap only)	0.01066	--

Manufacturer Test Comments EVAP EDV, Bleed, X7 xDrive40i, MY21

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	0.0107	0.0000	0.011	0.020	Pass

Certification Summary Information Report

Test Group	VBMXT04.4S6M	Evaporative/Refueling Family	VBMXR0180G05						
Test #	MBMX10064377	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	02/21/2020	Fuel	Gasoline						
Fuel Batch ID	T10/87	Fuel Calibration Number	14						
Vehicle Class	N/A	DF Type	Mfr. Determined						
Verify Test Lab ID	EETZ Emissions Lab								
E10 Evaporative Test Measurement Method	--								
Test Start Odometer Reading	6703	Odometer Units	K						
4WD Test Dyno	Yes	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									
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 35%;">Test Result Name</th> <th style="width: 30%;">Unrounded Test Result</th> <th style="width: 35%;">Verify Calculated FE Equivalent Value</th> </tr> </thead> <tbody> <tr> <td>LEAK-DIA (Effective Leak Diameter (inches))</td> <td style="text-align: center;">0.011</td> <td style="text-align: center;">--</td> </tr> </tbody> </table>				Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value	LEAK-DIA (Effective Leak Diameter (inches))	0.011	--
Test Result Name	Unrounded Test Result	Verify Calculated FE Equivalent Value							
LEAK-DIA (Effective Leak Diameter (inches))	0.011	--							
Manufacturer Test Comments	EDV Evap Leak Test X7 xDrive40i								
Certification Summary Table									
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	0.011	0.000	0.01	0.02	Pass	

Certification Summary Information Report

Test Group	VBMXT04.4S6M	Evaporative/Refueling Family	VBMXR0180G05
Fuel Properties			
Fuel Batch ID	T10/87	Fuel Calibration Number	30
Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)	Fuel Batch Calibration Date	06/16/2022
Fuel Batch Calibration Effective Date	06/23/2022	Fuel Batch Calibration Ineffective Date	--
Carbon Weight Fraction NMHC	--	Carbon Weight Fraction HC	--
Exhaust Carbon Weight Fraction	0.827	Fuel Methanol Volume Fraction	--
Fuel Density (grams/cubic ft)	--	Fuel Specific Gravity	0.745
Fuel Ethanol Volume Percent (%)	9.4	Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)	18207
Fuel Net Heat of Combustion (E10) (MJ/kg)	--	Fuel Carbon Mass Fraction (E10)	--
Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0)	0.827	Weight Fraction CO2	--
Fuel Batch ID	T10/87	Fuel Calibration Number	14
Test Fuel Type	48 - Tier 3 E10 Regular Gasoline (9 RVP @Low Alt.)	Fuel Batch Calibration Date	10/09/2019
Fuel Batch Calibration Effective Date	10/23/2019	Fuel Batch Calibration Ineffective Date	--
Carbon Weight Fraction NMHC	--	Carbon Weight Fraction HC	--
Exhaust Carbon Weight Fraction	0.826	Fuel Methanol Volume Fraction	--
Fuel Density (grams/cubic ft)	--	Fuel Specific Gravity	0.742
Fuel Ethanol Volume Percent (%)	9.4	Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)	18220
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	T2/E0	Fuel Calibration Number	29
Test Fuel Type	61 - Tier 2 Cert Gasoline	Fuel Batch Calibration Date	05/09/2022
Fuel Batch Calibration Effective Date	05/19/2022	Fuel Batch Calibration Ineffective Date	--
Carbon Weight Fraction NMHC	--	Carbon Weight Fraction HC	--
Exhaust Carbon Weight Fraction	0.862	Fuel Methanol Volume Fraction	--
Fuel Density (grams/cubic ft)	--	Fuel Specific Gravity	0.736
Fuel Ethanol Volume Percent (%)	--	Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)	18710
Fuel Net Heat of Combustion (E10) (MJ/kg)	--	Fuel Carbon Mass Fraction (E10)	--
Fuel Blend Carbon Weight Fraction / Fuel Carbon Mass Fraction (E0)	0.862	Weight Fraction CO2	--
Fuel Batch ID	COE10	Fuel Calibration Number	31
Test Fuel Type	28 - Cold CO E10 Regular Gasoline (Tier 3)	Fuel Batch Calibration Date	08/23/2022
Fuel Batch Calibration Effective Date	08/23/2022	Fuel Batch Calibration Ineffective Date	--
Carbon Weight Fraction NMHC	--	Carbon Weight Fraction HC	--

Certification Summary Information Report

Test Group	VBMXT04.4S6M	Evaporative/Refueling Family	VBMXR0180G05
Exhaust Carbon Weight Fraction	0.826	Fuel Methanol Volume Fraction	--
Fuel Density (grams/cubic ft)	--	Fuel Specific Gravity	0.746
Fuel Ethanol Volume Percent (%)	9.8	Fuel Net Heating Value / Fuel Net Heat of Combustion (E0) (BTU/lb)	18186
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	--

Certification Summary Information Report

Test Group	VBMXT04.4S6M	Evaporative/Refueling Family	VBMXR0180G05						
Consolidated List of Standards									
Exhaust Standards									
Cert Region	Federal	Cert/In-Use Code	Cert						
Vehicle Class	LDV/Passenger Car	Standard Level	Other						
Fuel	Gasoline	Test Procedure	Federal fuel 3-day exhaust						
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	--	--	--	--	--	--	0.3	999
120,000 miles	METHANE	--	--	--	--	--	--	0.0025	0.030
120,000 miles	N2O	--	--	--	--	--	--	0.0002	0.010
150,000 miles	CO	--	--	--	--	--	--	0.19	1.7
150,000 miles	CO-COMP	--	--	--	--	--	--	--	4.2
150,000 miles	HCHO	--	--	--	--	--	--	--	0.004
150,000 miles	NMOG	--	--	1.10	--	--	--	0.0057	999.999
150,000 miles	NMOG+NOX	--	--	--	--	--	1	--	0.070
150,000 miles	NMOG+NOX-COMP	--	--	--	--	--	--	--	0.070
150,000 miles	NOX	--	--	--	--	--	--	0.0014	999.999
150,000 miles	PM	--	--	--	--	--	--	0.0004	0.003
Cert Region				Federal	Cert/In-Use Code		Cert		
Vehicle Class				LDV/Passenger Car	Standard Level		Other		
Fuel				Gasoline	Test Procedure		HWFE		
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
120,000 miles	CREE	--	--	--	--	--	--	0.3	999.999
150,000 miles	NMOG	--	--	1.03	--	--	--	0.0057	999.999
150,000 miles	NMOG+NOX	--	--	--	--	--	1	--	0.070
150,000 miles	NOX	--	--	--	--	--	--	0.0014	999.999

Certification Summary Information Report

Test Group		VBMXT04.4S6M			Evaporative/Refueling Family			VBMXR0180G05		
Cert Region		Federal			Cert/In-Use Code			Cert		
Vehicle Class		LDV/Passenger Car			Standard Level			Other		
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	--	--	--	--	--	--	0.19	999.9	
150,000 miles	NMOG	--	--	1.03	--	--	--	0.0057	999.999	
150,000 miles	NOX	--	--	--	--	--	--	0.0014	999.999	

Cert Region		Federal			Cert/In-Use Code			Cert		
Vehicle Class		LDV/Passenger Car			Standard Level			Other		
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	--	--	--	--	--	--	0.19	999.9	
150,000 miles	NMOG	--	--	1.03	--	--	--	0.0057	999.999	
150,000 miles	NOX	--	--	--	--	--	--	0.0014	999.999	
150,000 miles	PM	--	--	--	--	--	--	0.0004	0.006	

Cert Region		Federal			Cert/In-Use Code			Cert		
Vehicle Class		LDV/Passenger Car			Standard Level			Other		
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	--	--	--	--	--	--	0.06	12.5	
120,000 miles	HC-NM	--	--	--	--	--	--	0.00	0.5	

Evaporative/Refueling Standards

Evaporative/Refueling Family		VBMXR0180G05			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-EQUIV	--	0.020	0.0000					

Certification Summary Information Report

Test Group	VBMXT04.4S6M		Evaporative/Refueling Family	VBMXR0180G05	
Evaporative/Refueling Family	VBMXR0180G05		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	VBMXR0180G05		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	--	0.500	0.0594
Evaporative/Refueling Family	VBMXR0180G05		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	--	0.500	0.0000
Evaporative/Refueling Family	VBMXR0180G05		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	--	0.02	0.000
Evaporative/Refueling Family	VBMXR0180G05		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	--	0.20	0.011

Certification Summary Information Report

Test Group	VBMXT04.4S6M	Evaporative/Refueling Family	VBMXR0180G05
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	AS-VOLT	Average System Voltage
CO	Carbon Monoxide	CO2 BAG 1	Bag 1 Carbon Dioxide
CO2	Carbon dioxide	CO2 BAG 2	Bag 2 Carbon Dioxide
CREE	Carbon-Related Exhaust Emissions	CO2 BAG 3	Bag 3 Carbon Dioxide
OPT-CREE	Optional Carbon-Related Exhaust Emissions	CO2 BAG 4	Bag 4 Carbon Dioxide
NOX	Nitrogen Oxide	NMOG+NOX	Non-methane organic gases plus Nitrogen Oxides
PM	Particulate Matter	NMOG+NOX-COMP	SFTP Composite Non-methane Organic Gases + Nitrogen Oxides
PM-COMP	SFTP Composite Particulate Matter	DT-IWRR	Drive Trace Inertia Work Ratio Rating
HC-NM	Non-methane Hydrocarbon	DT-ASCR	Drive Trace Absolute Speed Change Rating
OMHCE	Organic material Hydrocarbon Equivalent	DT-EER	Drive Trace Energy Economy Rating
OMNMHCE	Organic material non-methane HC equivalent	COMB-CREE	Combined Carbon-Related Exhaust Emissions
NMOG	Non-methane organic gases	COMB-OPT-CREE	Combined Optional Carbon-Related Exhaust Emissions
HCHO	Formaldehyde	HC-TOTAL-EQUIV	Total Hydrocarbon equivalent - Evap only
H3C2HO	Acetaldehyde	METHANE-COMB	Combined CH4 for HD 2b/3 vehicles only
HC-NM+NOX	SFTP Non-methane Hydrocarbon + Nitrogen Oxides for US06 or SC03	N2O-COMB	Combined Nitrous Oxide for HD 2b/3 vehicles only
HC-NM+NOX-COMP	SFTP Composite Non-methane Hydrocarbon + Nitrogen Oxides	LEAK-DIA	Effective Leak Diameter (inches)
CO-COMP	SFTP Composite Carbon Monoxide	LEAK-GAS CAP	Gas Cap Leakage (cc/min)
ETHANOL	C2H5OH - Ethanol	CO2-COMB	Combined Carbon Dioxide for HD 2b/3 Vehicles Only
FE BAG 1	Bag 1 Fuel Economy	KW-HRS	Integrated DC KW-HRS
FE BAG 2	Bag 2 Fuel Economy	CH4 BAG 1	Bag 1 Methane
FE BAG 3	Bag 3 Fuel Economy	CH4 BAG 2	Bag 2 Methane
FE BAG 4	Bag 4 Fuel Economy	CH4 BAG 3	Bag 3 Methane
MFR FE	Manufacturer Fuel Economy	CH4 BAG 4	Bag 4 Methane
HC	Hydrocarbon for Running Loss and ORVR	CO BAG 1	Bag 1 Carbon Monoxide
METHANE	CH4 - Methane	CO BAG 2	Bag 2 Carbon Monoxide
METHANOL	CH3OH - Methanol	CO BAG 3	Bag 3 Carbon Monoxide
N2O	Nitrous Oxide	CO BAG 4	Bag 4 Carbon Monoxide
SPITBACK	Spitback Hydrocarbon in grams	NMOG BAG 1	Bag 1 Non-methane organic gases
AMP-HRS	Integrated Amp-hours	NMOG BAG 2	Bag 2 Non-methane organic gases
START-SOC	System Start State of Charge Watt-hours	NMOG BAG 3	Bag 3 Non-methane organic gases
END-SOC	System End State of Charge Watt-hours	NMOG BAG 4	Bag 4 Non-methane organic gases
ACT-DISTANCE	Actual Distance Driven (miles)		
Certification Region			

Certification Summary Information Report

Test Group	VBMXT04.4S6M	Evaporative/Refueling Family		VBMXR0180G05
CA	California + CAA Section 177 states	FA	Federal	
Exhaust Emission Standard Level				
B1	Federal Tier 2 Bin 1	T3B160	Federal Tier 3 Bin 160	
B2	Federal Tier 2 Bin 2	T3B125	Federal Tier 3 Bin 125	
B3	Federal Tier 2 Bin 3	T3B110	Federal Tier 3 Transitional Bin 110	
B4	Federal Tier 2 Bin 4	T3B85	Federal Tier 3 Transitional Bin 85	
B5	Federal Tier 2 Bin 5	T3SULEV30	Federal Tier 3 Transitional LEV-II SULEV30 Carryover	
B6	Federal Tier 2 Bin 6	T3B70	Federal Tier 3 Bin 70	
B7	Federal Tier 2 Bin 7	T3B50	Federal Tier 3 Bin 50	
B8	Federal Tier 2 Bin 8	T3B30	Federal Tier 3 Bin 30	
B9	Federal Tier 2 Bin 9	T3B20	Federal Tier 3 Bin 20	
B10	Federal Tier 2 Bin 10	T3B0	Federal Tier 3 Bin 0	
B11	Federal Tier 2 Bin 11	HDV2B395	Federal Tier 3 HD Class 2b Transitional Bin 395	
HDV1	HDV1 (Federal HD chassis Class 2b GVW 8501-10000)	HDV2B340	Federal Tier 3 HD Class 2b Transitional Bin 340	
HDV2	HDV2 (Federal HD chassis Class 3 GVW 10001-14000)	HDV2B250	Federal Tier 3 HD Class 2b Bin 250	
L2	California LEV-II LEV	HDV2B200	Federal Tier 3 HD Class 2b Bin 200	
L2OP	California LEV-II LEV Optional	HDV2B170	Federal Tier 3 HD Class 2b Bin 170	
U2	California LEV-II ULEV	HDV2B150	Federal Tier 3 HD Class 2b Bin 150	
S2	California LEV-II SULEV	HDV2B0	Federal Tier 3 HD Class 2b Bin 0	
ZEV	California ZEV	HDV3B630	Federal Tier 3 HD Class 3 Transitional Bin 630	
OT	Other	HDV3B570	Federal Tier 3 HD Class 3 Transitional Bin 570	
T1	Federal Tier 1	HDV3B400	Federal Tier 3 HD Class 3 Bin 400	
PZEV	California PZEV	HDV3B270	Federal Tier 3 HD Class 3 Bin 270	
L2LEV160	California LEV-II LEV160	HDV3B230	Federal Tier 3 HD Class 3 Bin 230	
L2ULEV125	California LEV-II ULEV125	HDV3B200	Federal Tier 3 HD Class 3 Bin 200	
L2SULEV30	California LEV-II SULEV30	HDV3B0	Federal Tier 3 HD Class 3 Bin 0	
L2LEV395	California LEV-II LEV395	L4SULEV100	California LEV-IV SULEV100	
L2ULEV340	California LEV-II ULEV340	L4SULEV125	California LEV-IV SULEV125	
L2LEV630	California LEV-II LEV630	L4SULEV15	California LEV-IV SULEV15	
L2ULEV570	California LEV-II ULEV570	L4SULEV150	California LEV-IV SULEV150	
L3LEV160	California LEV-III LEV160	L4SULEV170	California LEV-IV SULEV170	
L3ULEV125	California LEV-III ULEV125	L4SULEV175	California LEV-IV SULEV175	
L3ULEV70	California LEV-III ULEV70	L4SULEV20	California LEV-IV SULEV20	
L3ULEV50	California LEV-III ULEV50	L4SULEV200	California LEV-IV SULEV200	
L3SULEV30	California LEV-III SULEV30	L4SULEV230	California LEV-IV SULEV230	
L3SULEV20	California LEV-III SULEV20	L4SULEV25	California LEV-IV SULEV25	
L3LEV395	California LEV-III LEV395	L4SULEV30	California LEV-IV SULEV30	
L3ULEV340	California LEV-III ULEV340	L4SULEV75	California LEV-IV SULEV75	
L3ULEV250	California LEV-III ULEV250	L4SULEV85	California LEV-IV SULEV85	
L3ULEV200	California LEV-III ULEV200	L4ULEV125	California LEV-IV ULEV125	

Certification Summary Information Report

Test Group		VBMXT04.4S6M	Evaporative/Refueling Family		VBMXR0180G05
L3SULEV170	California LEV-III SULEV170		L4ULEV200	California LEV-IV ULEV200	
L3SULEV150	California LEV-III SULEV150		L4ULEV250	California LEV-IV ULEV250	
L3LEV630	California LEV-III LEV630		L4ULEV270	California LEV-IV ULEV270	
L3ULEV570	California LEV-III ULEV570		L4ULEV40	California LEV-IV ULEV40	
L3ULEV400	California LEV-III ULEV400		L4ULEV400	California LEV-IV ULEV400	
L3ULEV270	California LEV-III ULEV270		L4ULEV50	California LEV-IV ULEV50	
L3SULEV230	California LEV-III SULEV230		L4ULEV60	California LEV-IV ULEV60	
L3SULEV200	California LEV-III SULEV200		L4ULEV70	California LEV-IV ULEV70	
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	
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	