BMW

Application for Certification

Model Year: Manufacturer Name:	2023 BMW	
Test Group: Test Group Description:	PBMXV00.0G2X electric, BEV	
Vehicle Class:	EPA LDV	CARB PC
Applicable Standards: FTP Standard: SFTP Standard:	EPA Tier 3 - Bin 0 not applicable	CARB ZEV not applicable
Carlines Covered:	i4 M50 Gran Coupe (19" Wheels),	i4 M50 Gran Coupe (20" Wheels)

Test EDV:

VID	CFG	FTP depl.	HWY depl.
FK96493	00	NBMX10070938	NBMX10070939

Test 5-Cycle Adjustment Factor:

VID	CFG	FTP	HWY	US06	SC03	Cold CO
FK96493	00	NBMX10070940	NBMX10070941	NBMX10070942	NBMX10070944	NBMX10070955

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

BMW

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1. Correspondence and Communications

- 1.1. Authorized Persons
- 1.2. Certificate Information

Refer to Common Section, Section 1, Item 1.1

Refer to Common Section, Section 1, Item 1.2

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. not applicable

3. Evaporative / Refueling Family Description

4. Durability Procedure Description

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Application for Certification **PBMXV00.0G2X** Part 1

5. Test Group Description

5.1.	Test Group Name	PBMXV00.0G2X	
5.2.	Electric vehicle system description		
5.2.1.	Electric Motor Capacity	Refer to Section 16, Confident	ial Information
5.2.2.	Electric Motor Voltage	Refer to Section 16, Confident	ial Information
5.2.3.	Electric Motor Type	Refer to Section 16, Confident	ial Information
5.2.4.	Electric Motor Weight	Refer to Section 16, Confident	ial Information
5.2.5.	Battery Capacity	Refer to Section 16, Confident	ial Information
5.2.6.	Battery Voltage	Refer to Section 16, Confident	ial Information
5.2.7.	Battery Type	Refer to Section 16, Confident	ial Information
5.3.	Vehicle class	EPA	CARB
		LDV	PC
5.4.	Emission standards class	Tier 3 - Bin 0	ZEV
5.5.	Participation in NLEV	not applicable	
5.6.	Applicable emission standards	Refer to Summary Sheet enclo of this application.	osed in Section 7

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6. **Test Vehicle Description**

6.1. Test Vehicle Description

VID	CFG	Carline	Model	Trans Type	Road Load CFG
FK96493	00	367	i4 M50 Gran Coupe (20" Wheels)	A-1	33
FK96493	01	366	i4 M50 Gran Coupe (19" Wheels)	A-1	31
FK96493	02	366	i4 M50 Gran Coupe (19" Wheels)	A-1	32

For a description of the selected drive modes refer to Section 16.4

Test parameter are described in the EV-CIS vehicle information

Road Load Configuration Description

X_	means number of tire groups used for this model
31	Road Load configuration
32	Road Load configuration
33	Road Load configuration

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)

Certification Summary Information Report submitted to EV-CIS

see attachment: CSI-PBMXV00.0G2X

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 86.1810-01, 86.1810-09, 86.1806-17, 86.1829-01 and 86.1829-15. The statements below identify the standards for which emission testing was not performed.

Electric vehicle emission compliance statement

According to 40 CFR §86.1829-15 (f) we state as the manufacturer, consistent with good engineering judgment, that all vehicles included in this application comply with the applicable testing requirements of 40 CFR part 86, subpart S.

8.2 Compliance Statements

9. OBD System Description

10. Description of Alternate-fueled Vehicles

11. Auxiliary Emission Control Devices (AECD) descriptions

BMW

Application for Certification PBMXV00.0G2X Part 1

- 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]
i4 M50 Gran Coupe (19" Wheels)	366	A (A)	LDV / PC	5018	5250	6030
i4 M50 Gran Coupe (20" Wheels)	367	A (A)	LDV / PC	5018	5250	6030

Drive Train Information 12.1.2.

Model Name	Carline	Trans	Gear	Engine Code	Axle ratio		E-enç	Electric Motor max. Torque [Nm]			
					front	rear	front	rear	Sys	front	rear
i4 M50 Gran Coupe (19" Wheels)	366	A (A)	1	XE2A02N0G26X	8.77	9.34	190/255	230/308	400 / 536	365	430
i4 M50 Gran Coupe (20" Wheels)	367	A (A)	1	XE2A02N0G26X	8.77	9.34	190/255	230/308	400 / 536	365	430

Tire Information 12.1.3.

Modell	Carline	Trans	Road Load CFG	Tire Front	Tire Rear
i4 M50 Gran Coupe (19" Wheels)	366	А	31	245/40 R19 98Y STD	255/40 R19 100Y STD
			32	245/40 R19 98H M+S STD	255/40 R19 100H M+S STD
i4 M50 Gran Coupe (20" Wheels)	367	А	33	255/35 R20 97Y STD	285/30 R20 99Y 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. Sales area

- 12.2. **Test Parameters**
- 12.2.1. **Engine Starting Procedures**
- 12.2.2. Shift Shedules
- Dynamometer loading information 12.2.3.
- 12.2.3.1. Sort of dynamometer

all wheel roll

not applicable

Refer to Common Section, Section 3

CA, FA

12.2.3.2. Electric Dynamometer Coefficients and Tires

Modell	Carline	Trans	Road Load CFG	N/V	A [lbf]	B [lbf/mph]	C [lbf/mph²]	TRLHP	a [lbf]	b [lbf/mph]	c [lbf/mph²]	Grill Shut ter
i4 M50 Gran Coupe (19" Wheels)	366	А	31	not applic able	42.8	0.119	0.01635	12.0	2.4	0.139	0.01435	Yes
i4 M50 Gran Coupe (19" Wheels)	366	А	32	not applic able	47.0	0.131	0.01639	12.6	11.4	0.006	0.01557	Yes
i4 M50 Gran Coupe (20" Wheels)	367	А	33	not applic able	59.5	0.167	0.01844	15.2	23.8	0.037	0.01777	Yes

highest N/V ratio of all axles

Road Load Configuration Description

X_	means number of tire groups used for this model
31	Road Load configuration
32	Road Load configuration
33	Road Load configuration

13. Projected Sales

Refer to Common Section for Model Year 2023

14. **Request for certification**

We herewith apply for the Federal Certificate of conformity and the ARB Executive Order for the Test Group PBMXV00.0G2X.

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

Elm

Hockgeiger Elmar

15. Other Information

15.1. Label according to 40 CFR § 86.1807-01 and according to California Motor Vehicle Emission Control Specifications. Refer to Section 17, Attachment

Carline	Model Name	VECI Label
366	i4 M50 Gran Coupe (19" Wheels)	see attachment: 03VE-XE2E-04
367	i4 M50 Gran Coupe (20" Wheels)	

15.2. 5-Cycle Adjustment Factor Calculation according to SAE J1634, Appendix B, Option 2 Refer to Section 17, Attachment

Carline	Model Name	5-Cycle Adjustment Factor
366	i4 M50 Gran Coupe (19" Wheels)	see attachment: 03AJ-0G2X-01
367	i4 M50 Gran Coupe (20" Wheels)	

17. Attachment

- 17.1 VECI Label
- 17.2 Certification Summary Information Report
- 17.3 5-Cycle Calculation

see attachment: 03VE-XE2E-04

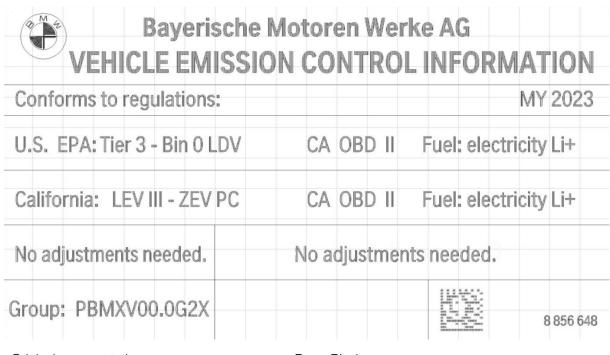
see attachment: CSI-PBMXV00.0G2X see attachment: 03AJ-0G2X-01 Designation

Attachment

VECI Label LDV, PBMXV00.0G2X

03VE-XE2E-04

DRAFT - Inverted Representation



Original representation

Base: Black Characters: Silver

Certification Summary Information Report

		•	-	
Manufacturer	BMW	Manufacturer Code		BMX
Test Group	PBMXV00.0G2X	Evaporative/Refueling Fa	mily	
Certificate Number		CARB Executive Order #	1	
Certificate Issue Date		Certificate Revision Date		
Certificate Effective Date		Conditional Certificate		
CSI Revision #		CSI Submission/Revision	Date	04/12/2022 05:49:42 A
Model Year	2023			
Test Group Information				
CSI Туре	Update for Correction	Running Change Referen	ce Number	
GHG Exempt Status	Not Exempt			
Drive Sources and Fuel(s)				
Drive Source #1:	Electric Motor			
Fu	el	Basic Fuel Metering System	Lean Burn Strateg	y Indicator
Electr	icity			
Hybrid Indicator	No			
Multiple Fuel Storage		Rechargeable Energy Sto	rage System Indicator	Yes
Multiple Fuel Combustion		Off-board Charge Capab	le Indicator	Yes
Fuel Cell Indicator	No	EPA Vehicle Class		LDV
Federal Clean Fuel Vehicle	Yes	Federal Clean Fuel Vehic	le Standard	ZEV
Federal Clean Fuel Vehicle ILEV Durability Group Name	No PBMXEEVNNBEV	Camornia Faruai Zero E Durability Group Equiva	missions Vehicle Indicator	
Reduced Fee Test Group	No	Certification Region Cod		FA, CA
Complies with HD GHG 2b/3 regulations?	No	Certification Region Cou		ГA, CA
	110	-		
Introduction into Commerce Date		CAP2000 Conditional Ce		N/A
Independent Commercial Importer?		CAP2000 Conditional Ce Alternative Fuel Convert		N/A
Introduction into Commerce Date Independent Commercial Importer? SFTP Federal Composite Compliance Identifier			er Certificate?	
Independent Commercial Importer? SFTP Federal Composite Compliance		Alternative Fuel Convert	er Certificate?	
Independent Commercial Importer? SFTP Federal Composite Compliance Identifier SFTP LEV-III Composite Compliance	 Not Applicable	Alternative Fuel Convert	er Certificate? CO Option	
Independent Commercial Importer? SFTP Federal Composite Compliance Identifier SFTP LEV-III Composite Compliance Indicator	 Not Applicable No	Alternative Fuel Convert SFTP Tier 2 Composite C	er Certificate? CO Option icle Test Group	 No
Independent Commercial Importer? SFTP Federal Composite Compliance Identifier SFTP LEV-III Composite Compliance Indicator OBD Compliance Type	 Not Applicable No CARB	Alternative Fuel Convert SFTP Tier 2 Composite C OBD Demonstration Veh	er Certificate? CO Option icle Test Group	 No NBMXV00.0G2X
Independent Commercial Importer? SFTP Federal Composite Compliance Identifier SFTP LEV-III Composite Compliance Indicator OBD Compliance Type Test Group OBD Compliance Level	 Not Applicable No CARB	Alternative Fuel Convert SFTP Tier 2 Composite C OBD Demonstration Veh	er Certificate? CO Option icle Test Group	 No NBMXV00.0G2X

Test Group		PBMXV00).0G2X		Evaporative/Refueling	g Family				
Models Covered by th	nis Certificate	e								
Carline Manufacturer	Division	Ca	arline	Certification Region Code(s)	Drive System	Trans - 7	Гуре	- # of Gears	Tran	s - Lockup
BMW	1 - BMW		M50 Gran 20" Wheels)	Federal	All Wheel Drive	Automa	atic	1		No
BMW	1 - BMW		M50 Gran 20" Wheels)	California + CAA Section 177 states	All Wheel Drive	Automa	atic	1		No
BMW	1 - BMW		M50 Gran 9" Wheels)	Federal	All Wheel Drive	Automa	atic	1		No
BMW	1 - BMW		M50 Gran 9" Wheels)	California + CAA Section 177 states	All Wheel Drive	Automa	atic	1		No
Engine Description										
Hybrid Type					Hybrid Description					
Engine Type					Mfr Engine Description	on				
Engine Block Arrangemer	nt				Mfr Engine Block Ar		ription			
Camless Valvetrain Indica					Oil Viscosity/Classific		F			
Number of Cylinders/Roto					Mechanically Variabl		Ratio Indicato	r		
•										
After Treatment Devi	.,.,,									
Mfr After Treatment Dev Comments	ice (ATD)									
Direct Ozone Reduction (DOR) Device									
Mfr Emission Control De	vice Comments									
Official Test Number	s									
Test Group Fuel F1	۲P	US06	SC03	Cold CO	Highway	EPA City Litmus Value	EPA City Litmus Threshold	EPA Highway Litmus Value	EPA Highway Litmus Threshold	CREE Weighting Factor
	-									
Official Charge Deple Test Group	-	mbers	UD			Highway				
Electric	ity		NBMX10	0070938	N	BMX10070939				

Certification Summary Information Report

Test Group	PBMXV00.0G2X	Evaporative/Refueling Family	
Hybrid Electric Vehicle And Fuel Cell	Information		
Rechargable Energy Storage System	Battery(s)	Rechargable Energy Storage System, if Other	
Battery Type	Lithium Ion	Number of Battery Packs	7
Total Voltage of Battery Packs	399	Battery Energy Capacity	210.6
Battery Specific Energy	149	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	Yes
Mfr Regenerative Braking Description			
Drive Motor(s)/Generator(s)	2		
Motor/Generator Type 1	EESM	Rated Motor/Generator Power	230
Motor/Generator Type 2	EESM	Rated Motor/Generator Power	190
Mfr Fuel Cell Description			
Fuel Cell On-Board H2 Storage Capacity (kg)		Usable H2 Fill Capacity (kg)	
Mfr Hybrid Electric/ Electric Vehicle Comments	Motor/Generator Type: externally ex	cited synchronuous machine (EESM)	

Test Group	PBMXV00.0G2X	Evaporative/Refueling Family	
Emission Data Vehicle Informati	on		
Vehicle ID / Configuration	FK96493 / 0	Manufacturer Vehicle Configuration Number	0
Original Test Group Name	NBMXV00.0G2X	Original Evaporative/Refueling Family	
Original Test Vehicle Model Year	2022		
Vehicle Model			
Represented Test Vehicle Make	BMW	Represented Test Vehicle Model	i4 M50 Gran Coupe (20" Wheels)
Leak Family Details			
Leak Family Identifier		Leak Family Name	
	× / 1		

Drive Sources and Fuel System Details

Drive Source and Fuel#	Drive Source	Fuel
1	Electric Motor	Electricity

Hybrid Indicator	No		
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	Yes		
Odometer Correction Initial	0	Odometer Correction Factor	1
Odometer Correction Sign	+ = System Miles is equal to (Test odometer read	ding * Correction factor) + Initial system miles	
Odometer Correction Units	Miles		
Engine Code	XE2A02N0G26X	Rated Horsepower	536
Displacement (liters)	0.001		
Air Aspiration Method	Naturally Aspirated	Air Aspiration Method, if 'Other'	
Number of Air Aspiration Devices		Air Aspiration Device Configuration	
Charge Air Cooler Type		Drive Mode While Testing	All Wheel Drive
Shift Indicator Light Usage	Not eqipped	Aged Emission Components	4,000 (mi)
Curb Weight (lbs)	5018	Equivalent Test Weight (pounds)	5250
GVWR (lbs)	6030	N/V Ratio	119.7
Axle Ratio	9.34		
Transmission Type	Automatic	# of Transmission Gears	1
Transmission Lockup	No	Creeper Gear	No

Test Group		PBMXV	00.0G2X	Evaporative/Refueling Family		efueling Family	
Dynamometer Co	Dynamometer Coefficients:						
		Target Coefficien	ts		Set Coefficients		
Coefficient Category	A (lbf)	B (lbf/mph)	C (lbf/mph**2)	A (lbf)	B (lbf/mph)	C (lbf/mph**2)	EPA Calculated Total Road Load Horse Power for City/Highway/Evap Coefficients
City/Highway/Evap	59.5	0.167	0.01844	23.8	0.037	0.01777	15.2
Cold CO	66.1	0.185	0.02049	14.6	-0.173	0.02139	N/A
US06	59.5	0.167	0.01844	23.8	0.037	0.01777	N/A

Emission Control Device Comments

Manufacturer Test Vehicle Comments

vi_FK96493_00_i4 M50 Gran Coupe (20" Wheels)_-_ETW-5250_default mode_D

Certification Summary Information Report

Test Group	PBMXV00.0G2X	Evaporative/Refueling Family	
Test #	NBMX10070940	Test Procedure	31 - Federal fuel 3-day exhaust
Exhaust Test # for this Evap Test		Test Fuel Type	62 - Electricity
Test Date	07/06/2021	Fuel	N/A
Fuel Batch ID		Fuel Calibration Number	
Vehicle Class	N/A	DF Type	Mfr. Assigned
Verify Test Lab ID	EETZ Emissions Lab		
E10 Evaporative Test Measurement Method	l		
Test Start Odometer Reading	4293	Odometer Units	Κ
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)
CO (Carbon Monoxide)	0	
DT-ASCR (Drive Trace Absolute Speed Change Rating)	99.99	
DT-EER (Drive Trace Energy Economy Rating)	99.99	
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	99.99	
MFR FE (Manufacturer Fuel Economy)	99.99	99.99
NOX (Nitrogen Oxide)	0	
NMOG (Non-methane organic gases)	0	

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

Manufacturer Test Comments

03_FTP4Bag_FK96493_00_i4 M50 Gran Coupe (20 Wheels)_-_ETW-5250_default mode_D. DC mi/kWh @ 50% SoC Bag 1: 3.28; Bag 2: 3.58; Bag 3: 3.37; Bag 4: 3.62

Certification Summary Information Report

Test Group	PBMXV00.0G2X	Evaporative/Refueling Family	
Test #	NBMX10070941	Test Procedure	3 - HWFE
Exhaust Test # for this Evap Test		Test Fuel Type	62 - Electricity
Test Date	07/06/2021	Fuel	N/A
Fuel Batch ID		Fuel Calibration Number	
Vehicle Class	N/A	DF Type	Mfr. Assigned
Verify Test Lab ID	EETZ Emissions Lab		
E10 Evaporative Test Measurement Method			
Test Start Odometer Reading	4293	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)
DT-ASCR (Drive Trace Absolute Speed Change Rating)	99.99	
DT-EER (Drive Trace Energy Economy Rating)	99.99	
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	99.99	
MFR FE (Manufacturer Fuel Economy)	99.99	99.99
NOX (Nitrogen Oxide)	0	
NMOG (Non-methane organic gases)	0	

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

Manufacturer Test Comments

04_HWFET_FK96493_00_i4 M50 Gran Coupe (20 Wheels)_-_ETW-5250_default mode_D. DC mi/kWh @ 50% SoC 3.55

Certification Summary Information Report

Test Group	PBMXV00.0G2X	Evaporative/Refueling Family	
Test #	NBMX10070942	Test Procedure	90 - US06
Exhaust Test # for this Evap Test		Test Fuel Type	62 - Electricity
Test Date	07/06/2021	Fuel	N/A
Fuel Batch ID		Fuel Calibration Number	
Vehicle Class	N/A	DF Туре	Mfr. Assigned
Verify Test Lab ID	EETZ Emissions Lab		
E10 Evaporative Test Measurement Method			
Test Start Odometer Reading	4293	Odometer Units	Κ
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)
CO (Carbon Monoxide)	0	
DT-ASCR (Drive Trace Absolute Speed Change Rating)	99.99	
DT-EER (Drive Trace Energy Economy Rating)	99.99	
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	99.99	
MFR FE (Manufacturer Fuel Economy)	99.99	99.99
NOX (Nitrogen Oxide)	0	
NMOG (Non-methane organic gases)	0	

Manufacturer Test Comments

05_US06_FK96493_00_i4 M50 Gran Coupe (20 Wheels)_-_ETW-5250_default mode_D. DC mi/kWh @ 50% SoC US06 City: 2.37; US06 HWY: 2.82

Certification Summary Information Report

Test Group	PBMXV00.0G2X	Evaporative/Refueling Family	
Test #	NBMX10070944	Test Procedure	95 - SC03
Exhaust Test # for this Evap Test		Test Fuel Type	62 - Electricity
Test Date	07/19/2021	Fuel	N/A
Fuel Batch ID		Fuel Calibration Number	
Vehicle Class	N/A	DF Type	Mfr. Assigned
Verify Test Lab ID	EETZ Emissions Lab		
E10 Evaporative Test Measurement Method			
Test Start Odometer Reading	5332	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)
CO (Carbon Monoxide)	0	
DT-ASCR (Drive Trace Absolute Speed Change Rating)	99.99	
DT-EER (Drive Trace Energy Economy Rating)	99.99	
DT-IWRR (Drive Trace Inertia Work Ratio Rating)	99.99	-
MFR FE (Manufacturer Fuel Economy)	99.99	99.99
NOX (Nitrogen Oxide)	0	
NMOG (Non-methane organic gases)	0	

Manufacturer Test Comments

06_SC03_FK96493_00_i4 M50 Gran Coupe (20 Wheels)_-_ETW-5250_default mode_D. DC mi/kWh @ 50% SoC 2.54

Certification Summary Information Report

Test Group	PBMXV00.0G2X	Evaporative/Refueling Family	
Test #	NBMX10070938	Test Procedure	81 - Charge Depleting UDDS
Exhaust Test # for this Evap Test		Test Fuel Type	62 - Electricity
Test Date	07/16/2021	Fuel	N/A
Fuel Batch ID		Fuel Calibration Number	
Vehicle Class	N/A	DF Type	Mfr. Assigned
Verify Test Lab ID	EETZ Emissions Lab		6
E10 Evaporative Test Measurement Method			
Test Start Odometer Reading	4899	Odometer Units	К
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
PHEV/EV Charge Depleting Test Inf	formation		
Recharge Event Voltage	230	Recharge Event Energy (kiloWatt-hours)	95.89
Charge Depleting Range (Calculated miles)	302.33	Charge Depleting Range (Actual miles)	302.33
All Electric Range Unadjusted (miles)		Derived 5-Cycle Coefficient Model Year	
Equivalent All Electric Range (miles)	302.33		
Number of Charge Depleting Bags/Phases Conducted	1	Transition Bag/Phase Number	

Charge Depleting Bag/Phase

Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result
1	Carbon-Related Exhaust Emissions	0
2	Drive Trace Absolute Speed Change Rating	99.99
3	Drive Trace Energy Economy Rating	99.99
4	Drive Trace Inertia Work Ratio Rating	99.99
5	Manufacturer Fuel Economy	106.27
6	System End State of Charge Watt-hours	86.082
7	System Start State of Charge Watt-hours	0

Manufacturer Test Comments

01_FTP Depleting_FK96493_00_i4 M50 Gran Coupe (20 Wheels)_-_ETW-5250_default mode_D. End SOC is 86082 Wh (system error limited to 4 digits) for full discharge. BEV - Multi Cycle testing was used according to SAE J1634 (2017-07); Calculated UDDS values; MFR FE is in units of MPGe (unadjusted, unrounded); Result is also 31.717 kWh/100 mi (unadjusted, unrounded)

Certification Summary Information Report

Test Group	PBMXV00.0G2X	Evaporative/Refueling Family	
Test #	NBMX10070939	Test Procedure	84 - Charge Depleting Highway
Exhaust Test # for this Evap Test		Test Fuel Type	62 - Electricity
Test Date	07/16/2021	Fuel	N/A
Fuel Batch ID		Fuel Calibration Number	
Vehicle Class	N/A	DF Type	Mfr. Assigned
Verify Test Lab ID	EETZ Emissions Lab		
E10 Evaporative Test Measurement Method			
Test Start Odometer Reading	4899	Odometer Units	К
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
PHEV/EV Charge Depleting Test In	formation		
Recharge Event Voltage	230	Recharge Event Energy (kiloWatt-hours)	95.89
Charge Depleting Range (Calculated miles)	306.38	Charge Depleting Range (Actual miles)	306.38
All Electric Range Unadjusted (miles)		Derived 5-Cycle Coefficient Model Year	
Equivalent All Electric Range (miles)	306.38		
Number of Charge Depleting Bags/Phases Conducted	1	Transition Bag/Phase Number	

Charge Depleting Bag/Phase

Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result
1	Carbon-Related Exhaust Emissions	0
2	Drive Trace Absolute Speed Change Rating	99.99
3	Drive Trace Energy Economy Rating	99.99
4	Drive Trace Inertia Work Ratio Rating	99.99
5	Manufacturer Fuel Economy	107.69
6	System End State of Charge Watt-hours	86.082
7	System Start State of Charge Watt-hours	0

Manufacturer Test Comments

02_HWFET Depleting_FK96493_00_i4 M50 Gran Coupe (20 Wheels)_-_ETW-5250_default mode_D. End SOC is 86082 Wh (system error limited to 4 digits) for full discharge. BEV - Multi Cycle testing was used according to SAE J1634 (2017-07); Calculated HWY values; MFR FE is in units of MPGe (unadjusted, unrounded); Result is also 31.298 kWh/100 mi (unadjusted, unrounded)

Certification Summary Information Report

Test Group	PBMXV00.0G2X	Evaporative/Refueling Family	
Test #	NBMX10070955	Test Procedure	86 - Charge Depleting 20 Degree F FTP
Exhaust Test # for this Evap Test		Test Fuel Type	62 - Electricity
Test Date	07/02/2021	Fuel	N/A
Fuel Batch ID		Fuel Calibration Number	
Vehicle Class	N/A	DF Type	Mfr. Assigned
Verify Test Lab ID	EETZ Emissions Lab		
E10 Evaporative Test Measurement Method			
Test Start Odometer Reading	4019	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
PHEV/EV Charge Depleting Test Inf	formation		
Recharge Event Voltage	230	Recharge Event Energy (kiloWatt-hours)	99.999
Charge Depleting Range (Calculated miles)	133.74	Charge Depleting Range (Actual miles)	133.74
All Electric Range Unadjusted (miles)		Derived 5-Cycle Coefficient Model Year	
Equivalent All Electric Range (miles)	133.74		
Number of Charge Depleting Bags/Phases Conducted	1	Transition Bag/Phase Number	

Charge Depleting Bag/Phase

Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result
1	Carbon Monoxide	0
2	Carbon dioxide	0
3	Carbon-Related Exhaust Emissions	0
4	Drive Trace Absolute Speed Change Rating	99.99
5	Drive Trace Energy Economy Rating	99.99
6	Drive Trace Inertia Work Ratio Rating	99.99
7	Manufacturer Fuel Economy	99.99
8	Nitrous Oxide	0
9	Non-methane organic gases	0
10	Particulate Matter	0
11	System End State of Charge Watt-hours	57.954
12	System Start State of Charge Watt-hours	0

Manufacturer Test Comments

07_FTPCOLD_FK96493_00_i4 M50 Gran Coupe (20 Wheels)_-_ETW-5250_Sport mode_D. End SOC is 57954 Wh (system error limited to 4 digits) for full discharge. Recharge Energy not needed for DC 5-cycle calculation. DC mi/kWh Bag 1: 1.54; Bag 3: 1.96; Avg.: 2.33 (of 18 FTP 72 cycles)

Test Group	PBMXV00.0G2X	Evaporative/Refueling Family	
Fuel Properties			

Certification Summary Information Report

Test Group	PBN	PBMXV00.0G2X Evaporative/Refueling Family							
			Consolida	ted List of Sta	andards				
Exhaust Standard	s								
Cert Region	Fede	ral		Cert/In-U	Jse Code		Cer	t	
Vehicle Class	LDV	/Passenger Car		Standard	Level		Fed	leral Tier 3 Bin 0	
Fuel	Elec	tricity		Test Proc	edure		CV	S 75 and later (w/o	o can. load)
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
120,000 miles	CREE						1		0
150,000 miles	СО						1		0
Cert Region	Cali	fornia + CAA Sectio	n 177 states	Cert/In-U	Jse Code		Cer	t	
Vehicle Class	LDV	/Passenger Car		Standard	Level		Cal	ifornia ZEV	
Fuel	Elec	tricity		Test Proc	edure		CV	S 75 and later (w/	o can. load)
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
120,000 miles	CREE						1		0

Test Group	PBMXV00.0G2X	Evaporative/Refueling	g Family			
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	METHANOL	CH3OH - Methanol			
СО	Carbon Monoxide	N2O	Nitrous Oxide			
CO2	Carbon dioxide	SPITBACK	Spitback Hydrocarbon in grams			
CREE	Carbon-Related Exhaust Emissions	AMP-HRS	Integrated Amp-hours			
OPT-CREE	Optional Carbon-Related Exhaust Emissions	START-SOC	System Start State of Charge Watt-hours			
NOX	Nitrogen Oxide	END-SOC	System End State of Charge Watt-hours			
PM	Particulate Matter	ACT-DISTANCE	Actual Distance Driven (miles)			
PM-COMP	SFTP Composite Particulate Matter	AS-VOLT	Average System Voltage			
HC-NM	Non-methane Hydrocarbon	CO2 BAG 1	Bag 1 Carbon Dioxide			
OMHCE	Organic material Hydrocarbon Equivalent	CO2 BAG 2	Bag 2 Carbon Dioxide			
OMNMHCE	Organic material non-methane HC equivalent	CO2 BAG 3	Bag 3 Carbon Dioxide			
NMOG	Non-methane organic gases	CO2 BAG 4	Bag 4 Carbon Dioxide			
НСНО	Formaldehyde	NMOG+NOX	Non-methane organic gases plus Nitrogen Oxides			
НЗС2НО	Acetaldehyde	NMOG+NOX-COMP	SFTP Composite Non-methane Organic Gases + Nitrogen Oxides			
HC-NM+NOX	SFTP Non-methane Hydrocarbon + Nitrogen Oxides for US06 or SC03	DT-IWRR	Drive Trace Inertia Work Ratio Rating			
HC-NM+NOX-COMP	SFTP Composite Non-methane Hydrocarbon + Nitrogen Oxides	DT-ASCR	Drive Trace Absolute Speed Change Rating			
CO-COMP	SFTP Composite Carbon Monoxide	DT-EER	Drive Trace Energy Economy Rating			
ETHANOL	C2H5OH - Ethanol	COMB-CREE	Combined Carbon-Related Exhaust Emissions			
FE BAG 1	Bag 1 Fuel Economy	COMB-OPT-CREE	Combined Optional Carbon-Related Exhaust Emissions			
FE BAG 2	Bag 2 Fuel Economy	HC-TOTAL-EQUIV	Total Hydrocarbon equivalent - Evap only			
FE BAG 3	Bag 3 Fuel Economy	METHANE-COMB	Combined CH4 for HD 2b/3 vehicles only			
FE BAG 4	Bag 4 Fuel Economy	N2O-COMB	Combined Nitrous Oxide for HD 2b/3 vehicles only			
MFR FE	Manufacturer Fuel Economy	LEAK-DIA	Effective Leak Diameter (inches)			
HC	Hydrocarbon for Running Loss and ORVR	LEAK-GAS CAP	Gas Cap Leakage (cc/min)			
METHANE	CH4 - Methane	CO2-COMB	Combined Carbon Dioxide for HD 2b/3 Vehicles Only			
Certification Region						
CA	California + CAA Section 177 states	FA	Federal			
Exhaust Emission Star	ndard Level					
B1	Federal Tier 2 Bin 1	L3ULEV340	California LEV-III ULEV340			
B2	Federal Tier 2 Bin 2	L3ULEV250	California LEV-III ULEV250			
B3	Federal Tier 2 Bin 3	L3ULEV200	California LEV-III ULEV200			
B4	Federal Tier 2 Bin 4	L3SULEV170	California LEV-III SULEV170			
B5	Federal Tier 2 Bin 5	L3SULEV150	California LEV-III SULEV150			

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Test Group	PBMXV00.0G2X	Evaporative/Refue	ling Family
B6	Federal Tier 2 Bin 6	L3LEV630	California LEV-III LEV630
B7	Federal Tier 2 Bin 7	L3ULEV570	California LEV-III ULEV570
B8	Federal Tier 2 Bin 8	L3ULEV400	California LEV-III ULEV400
B9	Federal Tier 2 Bin 9	L3ULEV270	California LEV-III ULEV270
B10	Federal Tier 2 Bin 10	L3SULEV230	California LEV-III SULEV230
B11	Federal Tier 2 Bin 11	L3SULEV200	California LEV-III SULEV200
HDV1	HDV1 (Federal HD chassis Class 2b GVW 8501-10000)	T3B160	Federal Tier 3 Bin 160
HDV2	HDV2 (Federal HD chassis Class 3 GVW 10001-14000)	T3B125	Federal Tier 3 Bin 125
L2	California LEV-II LEV	T3B110	Federal Tier 3 Transitional Bin 110
L2OP	California LEV-II LEV Optional	T3B85	Federal Tier 3 Transitional Bin 85
U2	California LEV-II ULEV	T3SULEV30	Federal Tier 3 Transitional LEV-II SULEV30 Carryover
S2	California LEV-II SULEV	T3B70	Federal Tier 3 Bin 70
ZEV	California ZEV	T3B50	Federal Tier 3 Bin 50
ОТ	Other	T3B30	Federal Tier 3 Bin 30
Т1	Federal Tier 1	T3B20	Federal Tier 3 Bin 20
PZEV	California PZEV	T3B0	Federal Tier 3 Bin 0
L2LEV160	California LEV-II LEV160	HDV2B395	Federal Tier 3 HD Class 2b Transitional Bin 395
L2ULEV125	California LEV-II ULEV125	HDV2B340	Federal Tier 3 HD Class 2b Transitional Bin 340
L2SULEV30	California LEV-II SULEV30	HDV2B250	Federal Tier 3 HD Class 2b Bin 250
L2LEV395	California LEV-II LEV395	HDV2B200	Federal Tier 3 HD Class 2b Bin 200
L2ULEV340	California LEV-II ULEV340	HDV2B170	Federal Tier 3 HD Class 2b Bin 170
L2LEV630	California LEV-II LEV630	HDV2B150	Federal Tier 3 HD Class 2b Bin 150
L2ULEV570	California LEV-II ULEV570	HDV2B0	Federal Tier 3 HD Class 2b Bin 0
L3LEV160	California LEV-III LEV160	HDV3B630	Federal Tier 3 HD Class 3 Transitional Bin 630
L3ULEV125	California LEV-III ULEV125	HDV3B570	Federal Tier 3 HD Class 3 Transitional Bin 570
L3ULEV70	California LEV-III ULEV70	HDV3B400	Federal Tier 3 HD Class 3 Bin 400
L3ULEV50	California LEV-III ULEV50	HDV3B270	Federal Tier 3 HD Class 3 Bin 270
L3SULEV30	California LEV-III SULEV30	HDV3B230	Federal Tier 3 HD Class 3 Bin 230
L3SULEV20	California LEV-III SULEV20	HDV3B200	Federal Tier 3 HD Class 3 Bin 200
L3LEV395	California LEV-III LEV395	HDV3B0	Federal Tier 3 HD Class 3 Bin 0
Transmission Type	Code		
AMS	Automated Manual- Selectable (e.g. Automated Manual with paddles)	Μ	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	Р	Part-time 4-Wheel Drive
F	2-Wheel Drive, Front	А	All Wheel Drive
R	2-Wheel Drive, Rear		

Test Group	PBMXV00.0G2X	Evaporative/Re	fueling Family	
Additional Term	as 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	

Application for Certification _BMXV00.0G2X BEV 5-Cycle Adjustment Factor Calculation

Date 08.03.2022

according to SAE J1634, Appendix B, Option 2

Vehicle ID / Configuration:	FK96493 / 00
Represented Model:	i4 M50 Gran Coupe (20 Wheels)

5-Cycle Test Results and DC Fuel Economy Calculation

Test	EPA Test No.	Sequence	Phase	mi/kWh _{DC}
		UDSS 1	Bag 1 FTP	3,28226
FTP 75°F	NBMX10070940	00331	Bag 2 FTP	3,58412
Midpoint Charge Test	NDWX 1007 0940	UDSS 2	Bag 3 FTP	3,37030
		00332	Bag 4 FTP	3,61782
	NBMX10070955	UDSS 1	Bag 1 Cold FTP	1,53544
FTP 20°F			Bag 2 Cold FTP	
Full Charge Test		UDSS 2	Bag 3 Cold FTP	1,96139
		Avg. FTP 20°F	Avg. Cold FTP	2,32645
HFEDS Midpoint Charge Test	NBMX10070941	-	Bag 1	3,55280
SC03 Midpoint Charge Test	NBMX10070944	-	Bag 1	2,54294
US06	NBMX10070942	US06 City	City Bag	2,37487
Midpoint Charge Test	NDIVIA 1007 0942	US06 Highway	Highway Bag	2,82432

City DC Fuel Economy Calculation	mi/kWh _{DC}	
	City FE	2,61801
	Start FC	0,01159
City Fuel Economy	Start Fuel FTP	0,02865
	Start Fuel 20F	0,50918
	Running FC	0,33982

Highway DC Fuel Economy Calculation	mi/kWh _{DC}	
	Highway FE	2,64998
Highway Fuel Economy	Start FC	0,00079
	Start Fuel FTP	0,02865
	Start Fuel 20F	0,50918
	Running FC	0,34638

Combined 5-Cycle DC Fuel Economy Calculation	mi/kWh _{DC}
Combined 5-Cycle Fuel Economy	2,63230

2-Cycle DC Fuel Economy Test Results and Fuel Economy Calculation

Combined 2-Cycle DC Test Results				
Test EPA Test No. mi/kWh _{DC}				
Multi Cycle Test	NBMX10070938	City FE	3,51214	
Multi Cycle Test	NBMX10070939	Highway FE	3,55920	

Combined 2-Cycle DC Fuel Economy Calculation	mi/kWh _{DC}
Combined 2-Cycle Fuel Economy	3,53316

Adjustment Factor Calculation

Adjustment Factor Calculation	-
Adjustment Factor	0,74503