

APPLICATION FOR CERTIFICATION

2018 MODEL YEAR

Durability Group:	JGMXEEENN002
Test Group:	JGMXV00.0002
Summary Sheet No:	NA
Durability Group Description:	Battery Electric Vehicle
Durability Vehicle:	NA
OBD Group:	NA
Test Group Description:	ZEV - Battery Electric Vehicle (BEV)
Applicable Standards:	Federal CAR BIN0/California ZEV PC
Carlines Covered by Evaporative Family:	0L Chevrolet BOLT EV NA
Vehicles Tested:	001HFV5002
For Questions, Contact:	D. S. McGuire (248) 444-0239

TABLE OF CONTENTS

Part 1

(Included in Initial Application)

Section 86.1844(d)(1)	Correspondence and Communications (Refer to Common Section)
Section 86.1844(d)(2)	Durability Group Description (Refer to Common Section)
Section 86.1844(d)(3)	Evaporative/Refueling Family Description (Refer to Common Section)
Section 86.1844(d)(4)	Durability Procedure Description (Refer to Common Section)
Section 86.1844(d)(5)	Test Group Description (Refer to Common Section)
Section 86.1844(d)(6)	Test Vehicle Description
Section 86.1844(d)(7)	Emission Standards and Test Results
Section 86.1844(d)(8)	Compliance Statements (Refer to Common Section)
Section 86.1844(d)(9)	OBD System Description (Refer to Common Section)
Section 86.1844(d)(10)	Description of Flexible and Alternative-Fueled Vehicles
Section 86.1844(d)(11)	AECD Description (Also Included in Common Section)
Section 86.1844(d)(12)	Description of Vehicles Covered by Certificate and Test Parameters
Section 86.1844(d)(13)	Projected Sales
Section 86.1844(d)(14)	Request Letter(s)
Section 86.1844(b)	Additional Information
Section 18.1817-05	Complete Heavy-Duty Chassis-Certified Vehicle Average, Trading and Banking Program (Refer to Common Section)
Section 18.1037.205(c)	Air Conditioning System Leakage (Heavy-Duty Vehicles Only)

Part 2

(Included in Final Application)

Section 86.1844(e)(1)	Part Numbers
Section 86.1844(e)(2)	Basic Calibration Information
Section 86.1844(e)(3)	Description of Vehicles Covered by Certificate (Refer to Section 86.1844(d)(12))
Section 86.1844(e)(4)	Final Sales (Refer to Common Section)
Section 86.1844(e)(5)	Service Information (Refer to Request Letter, 86.1844(d)(14))
Section 86.1844(e)(6)	Gasoline to Ethanol Emissions Conversion Ratio (Flex Fuel Only)

TEST VEHICLE DESCRIPTION

	<u>Durability Vehicle Selection</u>	<u>Emission-Data Vehicle Selection</u>
Test Group	N/A	JGMXV00.0002
Evaporative Family		NA (BEV) – Battery Electric Vehicle
Displacement – Liters		150 kW – Electric Motor
Engine Code		1
Emission Control System		
Exhaust		NA (BEV)
Evap		NA (BEV)
Model		1FB48
Transmission Type/Code		AV /1 (Electric Motor)
Shift Schedule		N/A
(LVW/ALVW) Test Weight – Lbs		3875
GVWR		N/A
Roadload HP		11.6
Final Drive		7.05
N/V Ratio – rpm/mph		96.0
Tires		215/50R17 – ALS
Vehicle/EPA Config No./GM Config No.		001HFV5002/00/000

NOTE: For complete vehicle information, see vehicle information submitted in VERIFY database.

Data Vehicle Selection Justification – This vehicle represents the heaviest test weight class, highest total roadload, and highest N/V ratio that is expected to be the worst case for emissions.

Certification Summary Information Report

Manufacturer	General Motors LLC	Manufacturer Code	GMX
Test Group	JGMXV00.0002	Evaporative/Refueling Family	--
Certificate Number	--	CARB Executive Order #	--
Certificate Issue Date	--	Certificate Revision Date	--
Certificate Effective Date	--	Conditional Certificate	--
CSI Revision #	--	CSI Submission/Revision Date	06/27/2017 08:43:15 AM
Model Year	2018		

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: Electric Motor

Fuel	Basic Fuel Metering System	Lean Burn Strategy Indicator
Electricity	--	No

Hybrid Indicator	No		
Multiple Fuel Storage	--	Rechargeable Energy Storage System Indicator	Yes
Multiple Fuel Combustion	--	Off-board Charge Capable Indicator	Yes
Fuel Cell Indicator	No	EPA Vehicle Class	LDV
Federal Clean Fuel Vehicle	No	Federal Clean Fuel Vehicle Standard	--
Federal Clean Fuel Vehicle ILEV	No	California Partial Zero Emissions Vehicle Indicator	No
Durability Group Name	JGMXEEENN002	Durability Group Equivalency Factor	5
Reduced Fee Test Group	No	Certification Region Code(s)	FA, CA
Complies with HD GHG 2b/3 regulations?	No		
Introduction into Commerce Date	--	CAP2000 Conditional Certificate?	N/A
Independent Commercial Importer?	--	Alternative Fuel Converter Certificate?	--
SFTP Federal Composite Compliance Identifier	Not Applicable	SFTP Tier 2 Composite CO Option	No
SFTP LEV-III Composite Compliance Indicator	No		
OBD Compliance Type	CARB	OBD Demonstration Vehicle Test Group	JGMXV00.0002
Test Group OBD Compliance Level	Full - no deficiencies	Number of Test Group OBD Deficiencies	0
OBD Deficiencies Comments	--		
Mfr Test Group Comments	BEV2		
Mfr Exhaust / Evap Standards Comments	--		

Certification Summary Information Report

Test Group		JGMXV00.0002			Evaporative/Refueling Family			--		
Models Covered by this Certificate										
Carline Manufacturer	Division	Carline	Certification Region Code(s)		Drive System	Trans - Type	- # of Gears		Trans - Lockup	
General Motors LLC	3 - Chevrolet	975 - BOLT EV	California + CAA Section 177 states		2-Wheel Drive, Front	Automatic	1		No	
General Motors LLC	3 - Chevrolet	975 - BOLT EV	Federal		2-Wheel Drive, Front	Automatic	1		No	
Engine Description										
Hybrid Type			--			Hybrid Description			--	
Engine Type			--			Mfr Engine Description			--	
Engine Block Arrangement			--			Mfr Engine Block Arrangement Description			--	
Camless Valvetrain Indicator			--			Oil Viscosity/Classification			--	
Number of Cylinders/Rotors			--			Mechanically Variable Compression Ratio Indicator			--	
After Treatment Device(s) (ATD)										
Mfr After Treatment Device (ATD) Comments			--							
Direct Ozone Reduction (DOR) Device			--							
Mfr Emission Control Device Comments			--							
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
Electricity	--	--	--	--	--	--	--	--	--	--
Official Charge Depleting Test Numbers										
Test Group Fuel		UDDS			Highway					
Electricity		HGMX10044270			HGMX10044791					

Certification Summary Information Report

Test Group	JGMXV00.0002	Evaporative/Refueling Family	--
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	350	Battery Energy Capacity	171.4
Battery Specific Energy	140	Battery Charger Type	Both
Number of Capacitors	--	Capacitor Rating (In Farads)	--
Mfr Capacitor Comments	--		
Hydraulic System Description	--		
Regenerative Braking Type	Electrical Regen Brake		
Regenerative Braking Source	Front Wheels	Driver Controlled Regenerative Braking	Yes
Mfr Regenerative Braking Description	--		
Drive Motor(s)/Generator(s)	1		
Motor/Generator Type 1	AC PERMANENT MAGNET	Rated Motor/Generator Power	150
Mfr Fuel Cell Description	--		
Fuel Cell On-Board H2 Storage Capacity (kg)	--	Usable H2 Fill Capacity (kg)	--
Mfr Hybrid Electric/ Electric Vehicle Comments	--		

Certification Summary Information Report

Test Group	JGMXV00.0002	Evaporative/Refueling Family	--						
Emission Data Vehicle Information									
Vehicle ID / Configuration	001HFV5002 / 0	Manufacturer Vehicle Configuration Number	0						
Original Test Group Name	HGMXV00.0002	Original Evaporative/Refueling Family	--						
Original Test Vehicle Model Year	2017								
Vehicle Model									
Represented Test Vehicle Make	CHEVROLET	Represented Test Vehicle Model	BOLT						
Leak Family Details									
Leak Family Identifier	LK1	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> </tbody> </table>				Drive Source and Fuel#	Drive Source	Fuel	1	Electric Motor	Electricity
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 reading * Correction factor) + Initial system miles								
Odometer Correction Units	Miles								
Engine Code	1	Rated Horsepower	200						
Displacement (liters)	99.999								
Air Aspiration Method	OTHER	Air Aspiration Method, if 'Other'	OTHER						
Number of Air Aspiration Devices	1	Air Aspiration Device Configuration	Single						
Charge Air Cooler Type	N/A	Drive Mode While Testing	2-Wheel Drive, Front						
Shift Indicator Light Usage	Not equipped	Aged Emission Components	4,000 (mi)						
Curb Weight (lbs)	3563	Equivalent Test Weight (pounds)	3875						
GVWR (lbs)	--	N/V Ratio	96						
Axle Ratio	7.05								
Transmission Type	Automatic	# of Transmission Gears	1						
Transmission Lockup	Yes	Creeper Gear	No						
Dynamometer Coefficients:									
Target Coefficients			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	28.4	0.2018	0.01948	14.2	0.0404	0.01932	11.6		
Emission Control Device Comments				BOLT - EV					

Certification Summary Information Report

Test Group	JGMXV00.0002	Evaporative/Refueling Family	--
Manufacturer Test Vehicle Comments	--		

Certification Summary Information Report

Test Group	JGMXV00.0002	Evaporative/Refueling Family	--
Test #	HGMX10044270	Test Procedure	81 - Charge Depleting UDDS
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	08/02/2016	Fuel	Electricity
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	LDV/Passenger Car	DF Type	Mfr. Assigned
Verify Test Lab ID	Milford		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	4479	Odometer Units	M
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	Road Speed Fan Usage	No

PHEV/EV TEST INFO

Recharge Event Voltage	240	Recharge Event Energy (kiloWatt-hours)	67.4206
Charge Depleting Range (Calculated miles)	364.4	Charge Depleting Range (Actual miles)	364.4
Equivalent All Electric Range (miles)	364.4		
Number of Charge Depleting Bags/Phases Conducted	1		

Charge Depleting Bag/Phase

Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result
1	Actual Distance Driven (miles)	7.413
2	Average System Voltage	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	Integrated Amp-hours	3.2356
8	Manufacturer Fuel Economy	182.2
9	System End State of Charge Watt-hours	0
10	System Start State of Charge Watt-hours	1.2751

Manufacturer Test Comments

4K CD MCT EMIS DATA

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	4,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
CA	4,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--

Certification Summary Information Report

Test Group	JGMXV00.0002	Evaporative/Refueling Family	--
Test #	HGMX10044791	Test Procedure	84 - Charge Depleting Highway
Exhaust Test # for this Evap Test	--	Test Fuel Type	62 - Electricity
Test Date	08/31/2016	Fuel	Electricity
Fuel Batch ID	--	Fuel Calibration Number	--
Vehicle Class	LDV/Passenger Car	DF Type	Mfr. Assigned
Verify Test Lab ID	EPA		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	5000	Odometer Units	M
4WD Test Dyno	No	Diesel Adjustment Factor Usage	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	Road Speed Fan Usage	No

PHEV/EV TEST INFO

Recharge Event Voltage	238	Recharge Event Energy (kiloWatt-hours)	66.508
Charge Depleting Range (Calculated miles)	310.63	Charge Depleting Range (Actual miles)	310.63
Equivalent All Electric Range (miles)	310.63		
Number of Charge Depleting Bags/Phases Conducted	1		

Charge Depleting Bag/Phase

Charge Depleting Bag/Phase #	Test Result/Emission Name	Unrounded Test Result
1	Actual Distance Driven (miles)	0
2	Average System Voltage	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	Integrated Amp-hours	0
8	Manufacturer Fuel Economy	157.4
9	System End State of Charge Watt-hours	0
10	System Start State of Charge Watt-hours	0

Manufacturer Test Comments

4K CD MCT HWFE DATA - CONFIRMATORY AT EPA

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	4,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
CA	4,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--

Certification Summary Information Report

Test Group	JGMXV00.0002	Evaporative/Refueling Family	--
Fuel Properties			

Certification Summary Information Report

Test Group		JGMXV00.0002			Evaporative/Refueling Family			--		
Consolidated List of Standards										
Exhaust Standards										
Cert Region		California + CAA Section 177 states			Cert/In-Use Code			Cert		
Vehicle Class		LDV/Passenger Car			Standard Level			California ZEV		
Fuel		Electricity			Test Procedure			Charge Depleting UDDS		
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std	
4,000 miles	CO	--	--	--	--	--	--	0	0	
4,000 miles	CREE	--	--	--	--	--	--	0	0	
Cert Region		Federal			Cert/In-Use Code			Cert		
Vehicle Class		LDV/Passenger Car			Standard Level			Federal Tier 3 Bin 0		
Fuel		Electricity			Test Procedure			Charge Depleting UDDS		
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std	
4,000 miles	CO	--	--	--	--	--	--	0	0	
4,000 miles	CREE	--	--	--	--	--	--	0	0	
Cert Region		California + CAA Section 177 states			Cert/In-Use Code			Cert		
Vehicle Class		LDV/Passenger Car			Standard Level			California ZEV		
Fuel		Electricity			Test Procedure			Charge Depleting Highway		
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std	
4,000 miles	CO	--	--	--	--	--	--	0	0	
4,000 miles	CREE	--	--	--	--	--	--	0	0	
Cert Region		Federal			Cert/In-Use Code			Cert		
Vehicle Class		LDV/Passenger Car			Standard Level			Federal Tier 3 Bin 0		
Fuel		Electricity			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	
4,000 miles	CO	--	--	--	--	--	--	0	0	
4,000 miles	CREE	--	--	--	--	--	--	0	0	

Certification Summary Information Report

Test Group		JGMXV00.0002			Evaporative/Refueling Family			--		
Cert Region	California + CAA Section 177 states			Cert/In-Use Code			Cert			
Vehicle Class	LDV/Passenger Car			Standard Level			California ZEV			
Fuel	Electricity			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	
4,000 miles	CO	--	--	--	--	--	--	0	0	
Cert Region	Federal			Cert/In-Use Code			Cert			
Vehicle Class	LDV/Passenger Car			Standard Level			Federal Tier 3 Bin 0			
Fuel	Electricity			Test Procedure			Charge Depleting Highway			
Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std	
4,000 miles	CO	--	--	--	--	--	--	0	0	
4,000 miles	CREE	--	--	--	--	--	--	0	0	

Certification Summary Information Report

Test Group	JGMXV00.0002	Evaporative/Refueling 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
CO	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 gas	CO2 BAG 4	Bag 4 Carbon Dioxide
HCHO	Formaldehyde	NMOG+NOX	Non-methane organic gases plus Nitrogen Oxides
H3C2HO	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 Standard 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

Certification Summary Information Report

Test Group	JGMXV00.0002	Evaporative/Refueling 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	
OT	Other	T3B30	Federal Tier 3 Bin 30	
T1	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)	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			

Certification Summary Information Report

Test Group	JGMXV00.0002	Evaporative/Refueling Family	--
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

FLEXIBLE OR ALTERNATE FUELS

Battery Electric Vehicle (BEV) System Description

Electric Drive Unit

One 3-phase AC Permanent Magnet electric motor
150 kW 10 second peak Power
360 Nm peak torque

Battery

Lithium Ion battery pack
60 kWh pack energy capacity
7.6 kW On-Board; 50 kW Off-Board charge power

Transmission

Automatic Variable (Electric Motor)

Regenerative Braking System

During coasting and during brake applies, the electric motor will be used to decelerate the vehicle and provide electricity to the high voltage battery. The amount of charge the high voltage battery will accept will vary during normal operation depending on the battery state of charge and temperature.

Additional Information Provided in Owner's Manual Documents

Proper recharging procedure
Description of warning system(s) for malfunctions
Starting and shifting procedures
Vehicle safety with the following subtopics:
 Information supplied to the customer for safe operation of the vehicle
 Information on safe handling of the battery system
 Description of emergency procedures

Engine Code Information

Base Engine Code	1
EC Derivatives	
Test Group	JGMXV00.0002
Durability Group	JGMXEEENN002
Engine RPO	EN0
Disp, liters	0.0
Trans RPO	MMF
Trans Type	AV
Product Code	F
Emission RPO	NC9,NT7
Emissions Category	Tier 3-BIN0/LEV3-ZEV
Vehicle Type	CAR
Regulatory Agencies	F/C
Sales Area	FA/CA
Design Altitude	Both
A/C Equipped	Yes
Driver Select Device	YES - Normal/Sport
Police Only	No
Horsepower @ RPM	NA
Torque @ RPM	NA
Emission Ctrl Sys	NA
TapUp/TapDown	No
Active Fuel Management	No
Description	BOLT - EV

Vehicle Parameters - Certificate Coverage

Durability Group JGMXEEENN002
 TestGroup JGMXV00.0002

EC	EC Der	Eng RPO	Eng Disp	Evap Family	Evap Code	Model	Car Line	Trans Type/Code	Final Drive Ratio	GVWR	Tire	NV	Loaded Weight Veh/DA	TWC Meth	TWC	TLHP	F0	F1	F2	RLHP RPO	Drv Sys	Note
1		EN0	0.0	JGMXNA	NA	1FB48	BOLT EV	--/1	7.05	--	215/50R17 ALS MIC	96.0	3863/2154	LVW	3875	11.6	28.40	0.2018	0.01948	--	FD	1
1		EN0	0.0	JGMXNA	NA	1FC48	BOLT EV	--/1	7.05	--	215/50R17 ALS MIC	96.0	3881/2157	LVW	3875	11.6	28.40	0.2018	0.01932	--	FD	1

GM elects to test at the next higher test weight class where applicable (reference 40CFR86.1831-01(b)(3)).

TRANSMISSION INFORMATION

Test Group ID	JGMXV00.0002
Transmission Code	1
Transmission RPO	MMF
Transmission Type	AV
Drive Gear Ratios	1
Chain Drive Ratio	NA
Shift Calibrations	PCM Controlled
Torque Converter Diameter	NA
Torque Converter Stall Torque Ratio	NA
Torque Converter Lockup RPM'S	PCM Controlled
Torque Converter Stall Torque Speed	NA
Multimode Feature - # of Modes	2
Shift Indicator Light	NO
Description	MMF
TapUp/TapDown	NO



General Motors

General Motors LLC
Compliance & Certification
MC 483-331-500
Milford Proving Ground
3300 General Motors Road
Milford, Michigan 48380-3726

May 30, 2017

JP102

Mr. D. Wright
U.S. Environmental Protection Agency
Office of Transportation & Air Quality
Certification & Compliance Division
2000 Traverwood Drive
Ann Arbor, MI 48105

Dear Mr. Wright:

Subject: Request for Certificate of Conformity - 2018 General Motors Test Group
JGMXV00.0002

General Motors requests that the EPA issue a certificate of conformity for the subject test group. GM requests the EPA review this request to expedite your final approval of the certificate of conformity for the subject test group.

GM requests that the confidential information contained within this Part 1 Application, or subsequently submitted for inclusion in this application, which is of a type described in EPA, General Council Class Determination 2-80, be accorded confidential treatment for the time periods specified in this Class Determination.

GM believes that the test group complies with all applicable regulations contained within Title 40 of the CFR, California Amendments to Subparts B, C, and S, Part 86 and Part 88, Title 40 of the CFR, and Title 13 of the California Code of Regulations.

Please review this information as soon as possible and call if you should have any questions regarding this request for a certificate of conformity.

Sincerely,

D. S. McGuire

D. S. McGuire
Total Compliance Engineer
Compliance & Certification

DSM/MA/ks
Attachments



General Motors

General Motors LLC
Compliance & Certification
MC 483-331-500
Milford Proving Ground
3300 General Motors Road
Milford, Michigan 48380-3726

May 30, 2017

JP103

Ms. A. Hebert, Chief
Emissions Compliance, Automotive Regulations & Science Div.
Air Resources Board
9480 Telstar Avenue, Suite 4
El Monte, CA 91731

Dear Ms. Hebert:

Subject: Request for Executive Order - 2018 General Motors Test Group JGMXV00.0002

General Motors requests that the CARB issue an executive order for the subject test group.

GM requests that the confidential information contained within this Part 1 Application, or subsequently submitted for inclusion in this application, which is of a type described in EPA, General Council Class Determination 2-80, be accorded confidential treatment for the time periods specified in this Class Determination.

GM believes that the test group complies with all applicable regulations contained within Title 40 of the CFR, California Amendments to Subparts B, C and S, Part 86, Title 40 of the CFR, and Title 13 of the California Code of Regulations.

The EPA certificate of conformity for this test group will be forwarded to you when it becomes available.

Based upon our review prior to submitting the application for certification and to the best of our current information and belief, the GM vehicles described in this request for executive order do not employ defeat devices, and do not use alternative maps or AECs that have not been declared. We are submitting this statement to you in good faith. If, in the future, we identify any new relevant information, we will notify CARB in a timely fashion.

Please review this information as soon as possible and call if you have any questions regarding this request for an executive order.

Sincerely,

D. S. McGuire

D. S. McGuire
Total Compliance Engineer
Compliance & Certification

DSM/MA/ks
Attachments

SPECIAL TEST INSTRUCTIONS

OTHER

Parking Brake:

All front wheel drive vehicles must have the parking brake set prior to any dynamometer emission testing.

Anti-Lock Braking System (ABS):

Some vehicles come equipped with ABS systems. During dynamometer testing, the ABS system will detect the difference in wheel speed between the front and rear wheels. The ABS system will interpret this as a system malfunction and illuminate the ABS warning lamp on the instrument cluster. This will have no effect on test results. ABS codes must be cleared when testing is complete.

Emission Test Special Vehicle Cooling:

When conducting an emission test, the front cooling fan is placed on the floor to match the vehicle air inlet area.

Automatic Headlight Systems:

Automatic headlight systems must be disabled prior to any emission or fuel economy testing. DRL can be turned off via a switch. Please contact General Motors Compliance and Certification organization for instructions on how to disable the automatic headlight system.

Daytime Running Lights (DRL):

Daytime running lights must be disabled prior to fuel economy testing. DRL can be turned off via a switch. Please contact General Motors Compliance and Certification organization for instructions on how to disable the daytime running lights.

VEHICLE STARTING INSTRUCTIONS

Warm or Cold Engine

Reference Owner's Manual for complete starting instructions.

SHIFT SCHEDULES – N/A

<u>Trans Code</u>	<u>Shift Schedule</u>				<u>Recommended Shift Speeds (mph)</u>			
	<u>FTP</u>	<u>Hwy</u>	<u>SC03</u>	<u>US06*1</u>	<u>1-2</u>	<u>2-3</u>	<u>3-4</u>	<u>4-5</u>
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*1 The speeds and acceleration rates encountered in the US06 driving schedule may require shift speeds different from the other schedules.

N/A – Not Applicable

EMISSION DATA RATIOS

TO BE USED FOR ASSEMBLY LINE TESTING

	<u>Data Ratios</u>
NMHC (G/MI) *1	NA
NMOG (G/MI) *2	NA
HCHO (G/MI) *3	NA
NMOG:NMHC *2	NA
HCHO:NMHC *2	NA

*1 NMHC includes methane response factor.

*2 Effective with the 2004 model year, both EPA and CARB have, through regulatory change, established an industry 1.04 NMHC to NMOG factor which can be used for cert testing for all gasoline tests (does not apply to alcohol fuels).

*3 HCHO requirements will now be met by a compliance statement for both EPA and CARB (does not apply to alcohol fuels).

*** VEHICLE INFORMATION ***

Model Year	2018	Certifying Agent	GM
Test Vehicle	001HFV5002	GM Config	001
		Run Date	05/26/2017 13:04:03

VEHICLE NO:	001HFV5002	CONFIGURATION NO:	001	EPA VERSION NO:	00
ENG FAM/TEST GRP:	JGMXV00.0002	ENGINE CODE:	1	ORIGINAL CERT YEAR:	2017
EVAP FAMILY:	NA	EVAP CODE:	NA	SALES LOC:	BOTH
TEST PURPOSE:	DATA	DISPL:	0.0	EMIS CATEGORY: FED=	BIN 0
VEH TYPE: FED=	PC	CAL=	PC	CAL=	ZEV

DURA GRP:	JGMXEEENN002	DURA VEH NO:		DURA CONFIG:	
FUEL METER:	NA	BOOST TYPE:		VALVES PER CYL:	0

TRANS: TYPE=	AV	CODE= 1	MODE= Normal	SIL EQUIPPED:	No	SIL VERSION:	N/A
SHIFT SCHEDULE:	N/A	SHIFT SCHED NO:				PRIMARY FUEL:	ELEC
EVAP CANISTER SIZE(L):		AUX=		C=	CA		
TANK CAPACITY (GAL): PRIM=	0	USAGE: F=	FA				
PREMIUM FUEL RECOM'D:	N	REAR=	38	A/C EQ:	Y		
DYNAMOMETER DRIVE AXLE:	F	F1= 0.2018		F2= 0.01948		TRLHP 68d:	11.6
TIRE PRESS(PSI): FRT=	38	F1= 0.222		F2= 0.02143		TRLHP 20d:	12.8
68d ROADLOAD: F0=	28.4						
20d ROADLOAD: F0=	31.24						

WEIGHTS (LBS):		EPA CURB: 3563	GVWR:	TIRES:		SIZE:	215/50R17
ETW: 3875				VENDOR:	MIC		
				TREAD TYPE:	ALS		

DESIGN:	CURB WEIGHT/TEST WT CLASS TYPE	DRIVE AXLE
	3563/LVW	2153

REP VEH MODEL:	1FB48	FIN DR RATIO:	7.05	N/V:	96.0	ENG RPO:	EN0
ACTUAL MODEL NO:	1FB48	TCC:	Y				
RATED HP:	200	CREEPER:	N	PS:	YES	PB:	YES
OVERDRIVE:	N	C/O CONF:	000	SIL LINK CONF:			
MODE LINK CONFS:		ODO CORR:	1.00				
ZERO-MILE ODO:	0						

RECHARGEABLE ENERGY STORAGE:	BATTERY
OFF-BOARD CHARGE CAPABLE:	YES
NOMINAL HYBRID BATTERY VOLT:	350
MAXIMUM HYBRID BATTERY CURRENT:	450

COMMENTS

F EN0&NT7 – 181FB48
201703281457

ISP TEST LABEL



23393173



**VEHICLE EMISSION
CONTROL INFORMATION**



**GENERAL
MOTORS
LLC**

Conforms to Regulations: 2018

Fuel: NA

U.S. EPA class / stds: LDV / TIER3

California class / stds: PC / ZEV

Group: JGMXV00.0002

Evap: N/A

Supplemental ZEV Application for Certification - JGMXV00.0002

<u>Section No.</u>	<u>Title</u>
01.00.0	Communications See GM Application for Certification JGMXV00.0002
.01.00	Mailing Information See GM Application for Certification JGMXV00.0002
.01	Certification Information See GM Application for Certification JGMXV00.0002
.02	Responsible official See GM Application for Certification JGMXV00.0002
02.00.00	Confidential Information See GM Application for Certification JGMXV00.0002
.01.00	Statement of confidentiality See GM Application for Certification JGMXV00.0002
.02.00	Test vehicle selection "Worst case" test vehicle selection and manufacturer defined criteria if more than one model offered (e.g. 2-door vs 4-door). See GM Application for Certification JGMXV00.0002
.03.00	Projected California sales See GM Application for Certification JGMXV00.0002
03.00.00	Facilities, equipment, and test procedures (Manufacturers to keep information regarding facilities and equipment on file.) Testing was conducted at GM facilities as well as EPA facilities – per SAE J1634 procedure (as Revised 2012, Section 8) Steady State at 65 mph
.01.00	Procedure to determine mass emissions of the fuel-fired heater Not applicable
.02.00	Battery pre-conditioning procedures (if necessary) None –Fully Charged per SAE J1634 procedure (as Revised 2012, Section 8)
04.00.00	(Reserved)
05.00.00	(Reserved)

Supplemental ZEV Application for Certification - JGMXV00.0002

<u>Section No.</u>	<u>Title</u>
06.00.00	Maintenance See Owner's Manual
.01.00	Test vehicle scheduled maintenance None
.02.00	Recommended customer maintenance schedule See Owner's Manual
.03.00	Lubricants and heater fuels, if any See Owner's Manual
07.00.00	Vehicle Emission Control Information (VECI) and Environmental Performance (EP) Labels
.01.00	VECI Label locations Under hood
.02.00	Sample emission control information labels See GM Application for Certification JGMXV00.0002
.03.00	Sample EP Label (Formerly called the Smog Index label) Per agreement with GM and CARB EPL is now incorporated in the vehicles Window sticker. Smog score value is 10. Actual window sticker not available until EPA Certificate and Fuel Economy Labels are available
.04.00	Statement of compliance See GM Application for Certification JGMXV00.0002
08.00.00	General technical description Manufacturer's sales brochures or owner's manual may be submitted to satisfy the requirements in this section See Owner's Manual
.01.00	Description of Propulsion System Single speed fixed ratio direct drive with 7.05 axle ratio. Energy stored and provided by 350v nominal lithium ion battery
.02.00	Description of Motor(s) See GM Application for Certification JGMXV00.0002 – Permanent Magnet 3-phase electric machine
.03.00	Description of Batteries See GM Application for Certification JGMXV00.0002 – Lithium Ion, 350v, 288 cells
.01	Battery charging capacity See GM Application for Certification JGMXV00.0002 – 171.4 Ahr

Supplemental ZEV Application for Certification - JGMXV00.0002

<u>Section No.</u>	<u>Title</u>
.02	Self-discharge information Not applicable
.03	Description of thermal management system Liquid heating and cooling system
08.00.04	Definition of end-of-life BEV is calibrated to set the EOL DTC when the calculated discharge power capability during normal operation will not allow the vehicle to drive real work i.e. US06 type drive schedules.
.05	Description of battery disposal plan Battery is recycled using GM contactor
.04.00	Description of Controller/Inverter High-voltage DC to high-voltage 3-phase AC
.05.00	Description of Transmission Single speed, fixed ratio (7.05)
.06.00	Description of climate control system
.01	Electric Heat Pump Not applicable
.02	(Reserved)
.03	Climate control system logic See HVAC section in Owner's Manual
.04	(Reserved) Not applicable
.07.00	Description of Regenerative Braking System
.01	Control logic Brake system will recover energy until the driver requests more braking power than the traction system can deliver.
.02	Percentage of braking performed on road by each axle Energy is only recovered from the front axle.
.08.00	Description of charger On-board, liquid cooled, 7.6 kW (240V), 1.4 kW (120V)
.01	Proper recharging procedures See Charging section of Owner's Manual

Supplemental ZEV Application for Certification - JGMXV00.0002

<u>Section No.</u>	<u>Title</u>
.02	Power requirements necessary to recharge vehicle Up to 7.6 kW (32 Amp wall service on 240V)
.09.00	Accessories which draw energy from the batteries Cabin Heater, Air Conditioner, Battery Heater, Accessory Power Module (12V)
.10.00	Other unique features (e.g. solar panels) SAE Type 3 Fast Charging
.11.00	Description of warning system(s) for maintenance / malfunction Service Vehicle Soon indicator on instrument panel cluster.
.01	Cut off terminal voltages for prevention of battery damage 240V
09.00.00	(Reserved)
10.00.00	(Reserved)
11.00.00	Starting and shifting schedules See GM Application for Certification JGMXV00.0002
12.00.00 through 16.00.00	(Reserved)
17.00.00	California requirements
.01.00	Statement of compliance
.01	General statement
.02	Driveability statement
.02.00	Supplemental Data and Certification Review Sheets
.03.00	(Reserved)
.04.00	Credits
.01	Description of multi-manufacturer arrangements Not applicable

Supplemental ZEV Application for Certification - JGMXV00.0002

<u>Section No.</u>	<u>Title</u>
.02	<p>Credit calculation</p> <p>Per table for ZEV credits found within CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 2009 AND SUBSEQUENT MODEL ZERO-EMISSION VEHICLES AND HYBRID ELECTRIC VEHICLES, IN THE PASSENGER CAR, LIGHT-DUTY TRUCK AND MEDIUM-DUTY VEHICLE CLASSES</p> <p>Adopted: December 17, 2008, Amended: December 2, 2009</p> <p>General Motors Classifies the Spark EV as a Type III, with UDDS Range \geq 200 Miles without CARB Specified Fast Charging capability. Per referenced Table the ZEV Credit shall be = 4.</p>
.05.00	Vehicle Safety
.01	<p>All information for safe operation of vehicle</p> <p>See first responder section of Owner's Manual</p>
.02	<p>Information on safe handling of battery system</p> <p>See first responder section of Owner's Manual</p>
.03	<p>Description of emergency procedures</p> <p>See first responder section of Owner's Manual</p>
.06.00	(Reserved)

2017 MODEL YEAR AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET ZEV-PASSENGER CARS, LIGHT-DUTY TRUCKS AND MEDIUM-DUTY VEHICLES

Manufacturer: **GENERAL MOTORS LLC** Engine Family: **JGMXV00.0002**Vehicle Class(es): PC , LDT1___, LDT2___, MDV2___, MDV3___, MDV4___, MDV5___No. of ZEV Credits per vehicle: **3**Fuel Type: Electro-chemical Battery , Fuel Cell___, Capacitor___, Other (specify)___

Battery Type(s): Lead Acid___, Nickel Cadmium___, SBLA___, Sodium Sulfur___, Sodium Nickel Chloride___, Nickel Metal Hydride___, Lithium Metal Disulfide___, Zinc Air___, Zinc Bromine___, Lithium polymer___, Other (specify)

LITHIUM-IONTotal Battery Weight: **960 LBS** Total Battery Volume: **285L** Battery specific energy: **139.5 Wh/kg**No. of batteries or modules per vehicle: **1** Total Battery Voltage: **400**Charger(s): On-board , Off Board , Conductive___, Inductive___

Drive Motor(s): AC Induction___, DC Brush___, DC Brushless___, Switched Reluctance___,

Other(specify) **PERMANENT MAGNET**No. of Drive Motors **1** Rated motor power **150 kW @ 5500 rpm** Max rpm: **8810**Drive: FWD , RWD___, 4WD-FT___, 4WD-PT___Regenerative Braking: No___, Yes , FW , RW___, AW___Driver Controlled Regen Braking: Yes , No___ Coast Regen Braking: Yes , No___Air Conditioning: Yes , No___

Fuel Fired Heater: Fuel Type: Gas___, Diesel___, CNG___, LNG___, LPG___, Other (specify)_____ Rated Heat Power_____kW

Vehicle Models (If coded, see attachments)	Trans Type M4, A4 (If applicable)	GVWR	Curb Weight	ETW Or Test Weight	DPA / RLHP Or Dyno Coeff a=, b=, c=
Chevrolet Bolt 1FB48	Direct Drive	4672	3563	3875	RLHP = 11.6

2017 MODEL YEAR AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET ZEV-PASSENGER CARS, LIGHT-DUTY TRUCKS AND MEDIUM-DUTY VEHICLES

Manufacturer: **GENERAL MOTORS LLC** Engine Family: **JGMXV00.0002**

Range Test Results							
Vehicle ID	Trans	(Check one) <input checked="" type="checkbox"/> TW <input type="checkbox"/> ETW	(Check one) <input type="checkbox"/> DPA <input checked="" type="checkbox"/> RLHP Or dyno coeff	City Range	System AC (Wh/mi)	System DC (Wh/mi)	Vehicle DC (Wh/mi)
001HFV5002	Direct Drive	3875	11.6	364.4	182.2	Not measured	164.7
				Hwy Range	System AC (Wh/mi)	System DC (Wh/mi)	Vehicle DC (Wh/mi)
				310.6	157.4	Not measured	191.9

Battery Test Results Specific Energy: Wh/kg 139.5

Fuel Fired Heater Test Results (emissions results in grams/mile): **NA**

NMHC	CO	NOx

Remarks:

Date Issued: Revisions:

-----**ARB USE ONLY**-----

Application

Processed by: _____ Date _____ Reviewed by: _____ Date _____