2015 Chevrolet Impala Bi-Fuel

Advanced Vehicle Testing – Baseline Vehicle Testing Results

VEHICLE SPECIFICATIONS[1]

Vehicle Features

VIN: 2G11Y5SN7F9204062
Class: Full Size
Seatbelt Positions: 5
Type: ICE Vehicle
CARB[2]: LEV-II ULEV
EPA Fuel Economy (Gas/CNG): 20/19 MPG(e) (Combined)

Engine

Model: DOHC Port Injected V6 with Variable Valve Timing (LFR)
Displacement: 3.6 L

CNG

Output: 175 kW (232 hp) @ 6,000 rpm
Torque: 315 Nm (218 lb-ft) @ 4,800 rpm

Gasoline

Output: 192 kW (258 hp) @ 5,900 rpm
Torque: 331 Nm (244 lb-ft) @ 4,900 rpm

Transmission

Type: Hydra-Matic 6T70E Six-Speed Automatic with Overdrive

CNG System

CNG Tank Manufacturer: Faber Cylinders
Pressure Rating: 3,600 psi
Pressure Release Valve: 5,400 psi
Tank Size: 7.8 Gallons Gasoline Equivalent (GGE)

Gasoline System

Gasoline Fuel Tank Capacity: 18.5 gal
Gasoline Fuel Type: Regular Unleaded

Weights

Design Curb Weight: N/A
Delivered Curb Weight: 4,120 lb
Distribution F/R: 46%/54%
GVWR: 5,043 lb
GAWR F/R: 2,479 lb/2,564 lb
Maximum Payload: 923 lb

Dimensions

Wheelbase: 111.7 in
Track F/R: 62.2 in/62.0 in
Length/Width: 201 in/73 in
Height: 58.9 in

Tires

Manufacturer: Firestone
Model: Firehawk GT
Size F&R: 235/50 R18
Pressure F/R: 32 psi/35 psi
Spare Installed: T125/70 R17, 60psi

NOTES:
1. Vehicle specifications were supplied by the manufacturer, measured, or derived from a literature review.
2. The vehicle was designated as a LEV-II ULEV by the California Air Resources Board (CARB).

GASOLINE MODE PERFORMANCE STATISTICS[1]

TRACK TESTING[2]

Acceleration 0-60 mph[3]

Measured Time: 7.9 s

Performance Goal: ≤13.5 s

Maximum Speed

At ¼ Mile: 90.3 mph

Maximum Speed[4]: 123.3 mph

Performance Goal: ≥90 mph at 1-mile mark

Braking from 60-0 mph[5]

Measured Time: 2.8s

Distance: 127 ft

Deceleration 60-10 mph[6]

Measured Time: 74.9 s

Distance: 3,598 ft

DYNAMOMETER TESTING[7]

Cycle Results[8]

	72 °F	20 °F	95 °F + 850 W/m^2
UDDS (Cold Start)	19.2 mpg	16.8 mpg	16.2 mpg
UDDS	21.5 mpg	21.0 mpg	18.5 mpg
HWFET	37.4 mpg	35.0 mpg	34.6 mpg
US06	21.5 mpg	21.8 mpg	18.5 mpg
SC03			16.7 mpg

Energy Consumption at Steady-State Speed, 0% Grade

10 mph	21.9 mpg		50 mph	44.8 mpg
20 mph	34.2 mpg		60 mph	38.6 mpg
30 mph	39.1 mpg		70 mph	34.4 mpg
40 mph	46.7 mpg		80 mph	29.7 mpg

Duration of Passing Maneuver at Grade[9]

	0% Grade	3% Grade	6% Grade
35-55 mph	3.9 s	4.4 s	5.1 s
55-65 mph	3.4 s	4.2 s	4.8 s
35-70 mph	7.5 s	9.1 s	10.9 s
55-80 mph	7.1 s	8.8 s	10.8 s
Maximum Speed at 25% Grade from Stop: 57.1 mph[10]			

NOTES:

1. Performance numbers are averages from multiple tests unless otherwise indicated.
2. Vehicle track testing occurs when the vehicle has achieved its "break-in mileage" of between 4,000 to 6,000 miles, and at the delivered curb weight plus 332 ± 10 lb (including driver and test equipment), for a test weight of 4,453 lb, distributed in a manner similar to the original curb loading of the vehicle. Track testing took place between December 3 and December 7, 2015 with a beginning vehicle odometer reading of 4,066 miles. The ambient temperatures ranged from 53 °F (12 °C) to 76 °F (24 °C). No accessories were used except for headlights as required by track regulation. The results provided are from multiple runs unless otherwise indicated; if taken from a single run, the result is the maximum value over the set of runs.
3. The acceleration is measured from the point at which the vehicle begins to move. The peak power value was taken from a single run.
4. The maximum speed was reached before the one-mile mark.
5. Controlled braking on dry surface. The peak power into the battery value was taken from a single run.
6. Coasting in drive on dry surface. Test run data were cut off when the vehicle reached 10 mph, as vehicle creep speeds are typically below this threshold. The peak power into the battery value and total energy into the battery results were both taken from a single (but different) run.
7. Dynamometer testing occurs after the track testing is complete. Dynamometer testing began on January 5, 2016, with the vehicle odometer reading 4,950 miles. A comprehensive explanation of the dynamometer facility and methodology can be found at http://www.transportation.anl.gov/D3/, titled "Chassis Dynamometer Testing Reference Document". The ABC coefficients derived from track coastdown testing and matched on the dynamometer were A: 40.61987 lb, B: 0.37434 lb/mph, and C: 0.01782 lb/mph^2.
8. The Cycle Results table presents the fuel economy achieved by the vehicle on five EPA drive cycles at three different ambient temperatures: (1) 72 °F with vehicle climate-control off, (2) 20 °F with vehicle climate-control set to 72 °F Auto, and (3) 95 °F with vehicle climate-control set to 72 °F Auto. The vehicle is also subjected to 850 W/m^2 of solar load at 95 °F to simulate direct sunlight. The drive cycles include a hot start unless otherwise indicated.
9. The passing maneuver value indicates the amount of time required for the vehicle to transition from the first to the second speed, at the specified grade.
10. Result was with transmission in manual mode.

Values in red indicate that the Performance Goal was not met.

CNG MODE PERFORMANCE STATISTICS[1]

TRACK TESTING[2]

Acceleration 0-60 mph[3]

Measured Time: 8.8 s

Performance Goal: ≤13.5 s

Maximum Speed

At ¼ Mile: 85.0 mph

Maximum Speed[4]: 122.4 mph

Performance Goal: ≥90 mph at 1-mile mark

Braking from 60-0 mph[5]

Measured Time: 2.8s

Distance: 127 ft

Deceleration 60-10 mph[6]

Measured Time: 72.1 s

Distance: 3,504 ft

DYNAMOMETER TESTING[7]

Cycle Results[8]

	72 °F	20 °F	95 °F + 850 W/m^2
UDDS (Cold Start)	18.3 mpge	28.4 mpge	15.7 mpge
UDDS	20.9 mpge	18.9 mpge	17.5 mpge
HWFET	36.3 mpge	32.4 mpge	33.6 mpge
US06	21.6 mpge	21.7 mpge	20.4 mpge
SC03			17.9 mpge

Energy Consumption at Steady-State Speed, 0% Grade

10 mph	20.5 mpge		50 mph	38.9 mpge
20 mph	28.0 mpge		60 mph	37.8 mpge
30 mph	36.1 mpge		70 mph	33.5 mpge
40 mph	42.5 mpge		80 mph	30.3 mpge

Duration of Passing Maneuver at Grade[9]

	0% Grade	3% Grade	6% Grade
35-55 mph	4.9 s	5.4 s	6.2 s
55-65 mph	4.3 s	5.3 s	6.7 s
35-70 mph	9.6 s	11.3 s	14.3 s
55-80 mph	9.0 s	11.3 s	14.8 s
Maximum Speed at 25% Grade from Stop: 37.2 mph[10]			

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9. The passing maneuver value indicates the amount of time required for the vehicle to transition from the first to the second speed, at the specified grade.
10. Result was with transmission in manual mode.

Values in red indicate that the Performance Goal was not met.

As a production vehicle, this vehicle is assumed to meet all Federal Motor Vehicle Safety Standards (FMVSS) for Internal Combustion Engine Vehicles.

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