

POLICE VEHICLE EVALUATION

Model Year 2014





STATE OF MICHIGAN
Department of State Police
and
Department of Technology, Management and Budget



2014 Model Year
Police Vehicle Evaluation Program

Published by:

Michigan State Police
Precision Driving Unit
December 2013

Prepared by:

Mrs. Tricia Steel
Michigan State Police
Precision Driving Unit

Photographs by:

Mr. Ray Holt
Michigan State Police

TABLE OF CONTENTS

Preface	1
General Information	2
Acknowledgements	3
Test Equipment.....	4
Police Package Vehicle Descriptions	
Police Package Vehicle Photographs & Descriptions	5-35
Vehicle Dynamics Testing	
Vehicle Dynamics Testing Objective & Methodology	36
Test Facility Diagram	37
Vehicle Dynamics Test Data	38-39
Vehicle Dynamics Test Comparison Chart.....	40
Acceleration and Top Speed Testing	
Acceleration and Top Speed Objectives & Methodology	42
Test Facility Diagram	43
Acceleration and Top Speed Data.....	44-48
Summary of Acceleration and Top Speed.....	49-51
Acceleration and Top Speed Test Data Comparison Charts	52-55
Brake Testing	
Brake Testing Objectives & Methodology	56
Brake Testing Data	57-71
Brake Testing Data Comparison Chart	72
Ergonomics and Communications Evaluation	
Ergonomics and Communications Evaluation Objectives & Methodology	74
Ergonomics and Communications Evaluation Test Data	75
Ergonomics and Communications Evaluation Comparison Chart	76
Fuel Economy	
Test Objective, Methodology, & Data	78
Test Data Comparison Chart.....	79-81
Scoring and Bid Adjustment Methodology	82-83
Police Motorcycle Descriptions	
Police Motorcycle Photographs & Descriptions.....	84-99
Motorcycle Dynamics Testing	
Motorcycle Dynamics Test Objective & Methodology	100
Motorcycle Dynamics Test Data	101
Motorcycle Dynamics Comparison Chart	102
Motorcycle Acceleration and Top Speed Testing	
Motorcycle Acceleration and Top Speed Objectives & Methodology.....	103
Motorcycle Acceleration and Top Speed Data	104-106
Summary of Motorcycle Acceleration and Top Speed	107
Motorcycle Acceleration and Top Speed Comparison Charts	108-111
Motorcycle Brake Testing	
Motorcycle Brake Testing Objectives & Methodology	112
Motorcycle Brake Testing Data	113-119
Motorcycle Brake Testing Data Comparison Chart.....	120
About the National Institute of Justice	
The Law Enforcement and Corrections Standards and Testing Program	
The Law Enforcement and Corrections Technology Center System, and	
The Office of Law Enforcement Standards	121-124

PREFACE

The Michigan State Police Vehicle Test Team is pleased to announce the results of the 2014 Model Year Police Vehicle Evaluation. This year we tested fifteen vehicles and seven motorcycles. We appreciate your continued support and encouragement. The vehicles evaluated this year included the following:

POLICE CATEGORY

Chevrolet Caprice 3.6L
Chevrolet Caprice 6.0L
Chevrolet Impala 3.6L
Chevrolet Tahoe 5.3L
2014.5 Dodge Charger 3.07 3.6L
Dodge Charger 2.65 5.7L
Dodge Charger 3.07 3.6L
2014.5 Dodge Charger 2.65 5.7L
2014.5 Dodge Charger AWD 3.06 5.7L
Ford PI Sedan FWD 3.5L
Ford PI Sedan AWD 3.06 3.7L
Ford PI Sedan AWD Ecoboost 3.5L
Ford PI Utility AWD 3.7L
2014.5 Ford PI AWD Ecoboost 3.5L
2014.5 Ford PI Utility AWD Ecoboost 3.5L

MOTORCYCLES

BMW R1200RTP
BMW F800GTP
Harley Davidson FLHP (Roadking)
Harley Davidson FLHTP (Electraglide)
Moto Guzzi California 1400 Touring ABS
Moto Guzzi Norge 1200 ABS
Victory Commander



GENERAL INFORMATION

All of the cars were tested with a clean roof (no overhead light or light bar) and without “A” pillar mount spotlights. We believe this is the best way to ensure all of the vehicles are tested on an equal basis. Remember that once overhead lights, spotlights, radio antennas, sirens, and other emergency equipment are installed, overall performance may be somewhat lower than we report.

Each vehicle was tested with the tires that are available as original equipment on the production model. Specific tire information for each vehicle is available in the Vehicle Description portion of this report. All vehicles listed in this report were equipped with electronic speed limiters.

Motorcycles were tested with equipment installed as provided by their respective manufacturer. Harley-Davidson, Victory, and Moto Guzzi chose to test their bikes with minimal equipment. BMW chose to test their bikes with the majority of the equipment installed.

Chrysler Proving Grounds - Acceleration, Top Speed, & Braking Tests

We had a full line up of test vehicles. We would like to thank Ms. Heather Gulley for the assistance we received from the staff at the Chrysler Proving Grounds.

During the acceleration runs, the Victory Commander I police motorcycle experienced a high speed “wobble” on run four. The rider of the motorcycle had to ease off the throttle to make the wobble subside. It is still unclear what caused the high speed wobble. There was no wobble or weave noted or detected during the motorcycle dynamics portion at Grattan Raceway.

Grattan Raceway - Motorcycle Dynamics

Motorcycle Dynamics testing this year was again performed at Grattan Raceway. This 2 mile road course provides a realistic environment to test motorcycles in dynamics and continues to produce comprehensive results.

The Moto Guzzi California 1400 developed an issue due to lean angle contact with the rear brake pedal mount (right side). This caused the rear brake to stick. Moto Guzzi engineers adjusted the mount and the motorcycle continued the dynamics test without incident.

The Moto Guzzi Norge had a lean angle issue with the center stand. The center stand spring mount ground off allowing the center stand to release and drag. The center stand was secured in the up position to continue the dynamics test without further incident.

Grattan Raceway - Vehicle Dynamics (High Speed Handling) Test

During the Vehicle Dynamics Testing at Grattan Raceway, a test driver noticed a severe shimmy on the front of the Ford All Wheel Drive 3.5L while completing the cool down lap. The Ford mechanics and Vehicle Travel Services mechanics inspected the car and found that the Left Front lug nuts were loose. The Ford mechanics replaced the wheel, hub and bearing assembly, and lug nuts. The wheel nuts were torqued to specifications and the vehicle completed the Dynamics testing without further incident.

We appreciate the support we received from General Motors, Ford, Chrysler, Harley-Davidson, BMW, Victory, and Moto Guzzi during testing. This also was the seventh year of motorcycle testing and we continue to get great feedback on this important component to the testing lineup.

We recommend you review the information contained in this report and then apply it to the needs of your agency. This report is not an endorsement of products, but a means of learning what’s available for your officers so they can do their job effectively and safely. If anything in this report requires further explanation or clarification, please call or write.

Lt. Ron Gromak, Phone: 517-322-5598, E-mail: gromak@michigan.gov
Sgt. Mike McCarthy, Phone: 517-322-1787, E-mail: mccarthym4@michigan.gov
Sgt. Matt Waters Phone: 517-322-1790, E-mail: watersm@michigan.gov
Michigan State Police, Precision Driving Unit 7426 North Canal Road, Lansing, Michigan 48913

ACKNOWLEDGEMENTS

We would like to thank the following contributors. We are grateful for their support and encouragement toward our ultimate goal: a safe, successful testing program that benefits the law enforcement community nationwide and beyond.

Colonel Kriste Kibbey Etue, Director, Michigan Department of State Police
Lt. Colonel Thomas W. Sands, Deputy Director, Field Services Bureau
Lt. Colonel Richard T. Arnold, Deputy Director, State Services Bureau
Lt. Colonel Gary M. Gorski, Deputy Director, Specialized Services Bureau
Mr. Shawn Sible, Deputy Director, Administrative Services Bureau
Personnel from the Michigan Department of Technology, Management and Budget, Vehicle and Travel Services

The National Institute of Justice, The National Law Enforcement and Corrections Technology Center, Mr. Lance Miller, Mr. Alex Sundstrom, Lockheed Martin Aspen Systems

Ms. Heather Gulley and personnel from Chrysler Proving Grounds
Mr. Sam Faasen and personnel from Grattan Raceway Park

The Michigan State Police Rockford Post for their assistance at Grattan Raceway.

A very special “thank you” to Chrysler, Ford Motor Company, General Motors, BMW Motorrad USA, Harley-Davidson Motorcycles, Moto Guzzi, and Victory Motorcycles for their hard work in building and preparing the test cars and motorcycles. We are grateful for your dedication to law enforcement. Everyday law enforcement looks to these vehicles/motorcycles to do a list of varied duties.

Finally, thank you to all in the United States and Canada who represent law enforcement and purchasing agencies for your constant encouragement and support. We are proud to make a contribution to the law enforcement community.

Michigan State Police Vehicle Test Team:



Back Row: Ret. Sgt. David “Doc” Halliday, Tpr. Nate Johnson, Sgt. Marcus Trammel, Tpr. Jeff Mercer, Sgt. Doug Schutter, Sgt. Mike McCarthy, Tpr. Russ Lady, Tpr. Jay Sweetland, Sgt. Brian DeWyse

Front Row: Ret. Sgt. Bob Ring, Lt. Ron Gromak, Tpr. Andy Douville, Sgt. Matt Rogers, F/Lt. Jim Flegel, Mrs. Wendy Galbreath, Mrs. Debbie Schrauben, Mrs. Tricia Steel, Sgt. Matt Waters

TEST EQUIPMENT

The following test equipment is utilized during the Acceleration, Top Speed, Braking, and Vehicle Dynamics portions of the evaluation program.

Kistler Company 39205 Country Club Drive Suite C20 Farmington Hills, MI 48331	<ul style="list-style-type: none">• DLS Smart Sensor – Optical Non-Contact Speed & Distance Sensor• Kistler L-350 1 Axis Optical Sensor• Kistler CDS-GPS CGPSLA 100 hz Logger
Shoei Helmets 3002 Dow Avenue Suite 128 Tustin, CA 92780	<ul style="list-style-type: none">• Law Enforcement Helmet – Model RJ-Air LE• Motorcycle Helmet – Multi-Tech
AMB i.t. US-INC 1631 Phoenix Blvd. Suite 11 College Park, GA 30349	<ul style="list-style-type: none">• AMB TranX Extended Loop Decoder• AMB TranX260 Transponders
Alpinestars USA 2780 W. 237 th Street Torrance, CA 90505-5270	<ul style="list-style-type: none">• Alpinestars Protective Riding Apparel



**TEST VEHICLE DESCRIPTIONS
AND PHOTOGRAPHS**

Chevrolet Caprice 3.6L



TEST VEHICLE DESCRIPTION

MAKE Chevrolet	MODEL Caprice		SALES CODE NO. 1EW19
ENGINE DISPLACEMENT	CUBIC INCHES 217	LITERS 3.6	
FUEL SYSTEM	SIDI (E85 capable)	EXHAUST Dual	
HORSEPOWER (SAE NET)	301 Hp @ 6700 RPM	ALTERNATOR 170 AMP	
TORQUE	265 ft. – lbs. @ 4800 RPM	BATTERY AGM 700 CCA (Auxilliary Battery also 700 CCA)	
COMPRESSION RATIO	11.3:1		
TRANSMISSION	MODEL 6L45	TYPE Column Shift, 6-Speed Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	2.92:1 (Limited Slip Rear Wheel Drive)		
STEERING	Electric Power Rack and Pinion		
TURNING CIRCLE (CURB TO CURB)	38 ft.		
TIRE SIZE, LOAD & SPEED RATING	P235/50R18, 99W, Goodyear RSA		
SUSPENSION TYPE (FRONT)	Independent Strut. Coil Springs, & Stabilizer Bar		
SUSPENSION TYPE (REAR)	Independent Strut. Coil Springs, & Stabilizer Bar		
GROUND CLEARANCE, MINIMUM	6.0"	LOCATION Engine Cradle	
BRAKE SYSTEM	Power 4-Wheel Anti-Lock Heavy Duty Disc Brakes		
BRAKES, FRONT	TYPE Vented Disc	SWEPT AREA	310.6 sq. in.
BRAKES, REAR	TYPE Vented Disc	SWEPT AREA	211.4 sq. in.
FUEL CAPACITY	GALLONS 19.0	LITERS	72.0
GENERAL MEASUREMENTS	WHEELBASE 118.5 in.	LENGTH	204.2 in.
	TEST WEIGHT 4049 lbs.	HEIGHT	58.7 in.
HEADROOM	FRONT 38.7 in.	REAR	37.6 in.
LEGROOM	FRONT 42.2 in.	REAR	43.2 in.
SHOULDER ROOM	FRONT 59.1 in.	REAR	59.0 in.
HIPROOM	FRONT 57.5 in.	REAR	57.9 in.
INTERIOR VOLUME	FRONT 56.0 cu. ft.	REAR	56.0 cu. ft.
	COMB 112 cu. ft.	TRUNK 17.4 cu. ft. (includes full-size spare tire and auxiliary battery)	
MAXIMUM PAYLOAD CAPACITY (INCLUDING PASSENGERS)	1182 lbs.		
EPA MILEAGE EST. (MPG)	CITY 18	HIGHWAY 26	COMBINED 21

Chevrolet Caprice 6.0L



TEST VEHICLE DESCRIPTION

MAKE Chevrolet	MODEL Caprice		SALES CODE NO. 1EW19
ENGINE DISPLACEMENT	CUBIC INCHES 364	LITERS	6.0
FUEL SYSTEM	SPFI	EXHAUST	Dual
HORSEPOWER (SAE NET)	355 Hp @ 5300 RPM		ALTERNATOR 170 AMP
TORQUE	384 ft. – lbs. @ 4400 RPM		BATTERY AGM 700 CCA (Auxilliary Battery also 700 CCA)
COMPRESSION RATIO	10.4:1		
TRANSMISSION	MODEL 6L80E	TYPE Column Shift, 6-Speed Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	2.92:1 (Limited Slip Rear Wheel Drive)		
STEERING	Electric Power Rack and Pinion		
TURNING CIRCLE (CURB TO CURB)	38 ft.		
TIRE SIZE, LOAD & SPEED RATING	P235/50R18, 99W, Goodyear RSA		
SUSPENSION TYPE (FRONT)	Independent Strut. Coil Springs, & Stabilizer Bar		
SUSPENSION TYPE (REAR)	Independent Strut. Coil Springs, & Stabilizer Bar		
GROUND CLEARANCE, MINIMUM	6.0"	LOCATION Engine Cradle	
	BRAKE SYSTEM Power, Dual Hydraulic, Anti-Lock		
BRAKES, FRONT	TYPE Vented Disc	SWEPT AREA	310.6 sq. in.
BRAKES, REAR	TYPE Vented Disc	SWEPT AREA	211.4 sq. in.
FUEL CAPACITY	GALLONS 19.0	LITERS	72.0
GENERAL MEASUREMENTS	WHEELBASE 118.5 in.	LENGTH	204.2 in.
	TEST WEIGHT 4156 lbs.	HEIGHT	58.7 in.
HEADROOM	FRONT 38.7 in.	REAR	37.6 in.
LEGROOM	FRONT 42.2 in.	REAR	43.2 in.
SHOULDER ROOM	FRONT 59.1 in.	REAR	59.0 in.
HIPROOM	FRONT 57.5 in.	REAR	57.9 in.
INTERIOR VOLUME	FRONT 56.0 cu. ft.	REAR	56.0 cu. ft.
	COMB 112 cu. ft.	TRUNK 17.4 cu. ft. (includes full-size spare tire and auxiliary battery)	
MAXIMUM PAYLOAD CAPACITY (INCLUDING PASSENGERS)	1173 lbs.		
EPA MILEAGE EST. (MPG)	CITY 15	HIGHWAY 24	COMBINED 18

Chevrolet Impala 3.6L



TEST VEHICLE DESCRIPTION

MAKE Chevrolet	MODEL Impala Limited 9C1	SALES CODE NO. 1WS19	
ENGINE DISPLACEMENT	CUBIC INCHES 217	LITERS	3.6
FUEL SYSTEM	SIDI (E 85 Capable)	EXHAUST	Single
HORSEPOWER (SAE NET)	302 Hp @ 6800 RPM	ALTERNATOR	170 AMP
TORQUE	262 ft. – lbs. @ 5300 RPM	BATTERY	720 CCA
COMPRESSION RATIO	11.5:1		
TRANSMISSION	MODEL 6T70	TYPE	6-Speed Automatic
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	2.44:1		
STEERING	Power Rack and Pinion		
TURNING CIRCLE (CURB TO CURB)	38 ft.		
TIRE SIZE, LOAD & SPEED RATING	P235/55R17, 98W, Goodyear A/S		
SUSPENSION TYPE (FRONT)	Independent McPherson Struts, Coil Springs, & Stabilizer Bar		
SUSPENSION TYPE (REAR)	Independent Tri-Link Coil Spring Over Strut & Stabilizer Bar		
GROUND CLEARANCE, MINIMUM	6.5"	LOCATION	Engine Cradle
BRAKE SYSTEM	Power, Dual Hydraulic, Anti-Lock		
BRAKES, FRONT	TYPE	Vented Disc	SWEPT AREA 246.3 sq. in.
BRAKES, REAR	TYPE	Solid Disc	SWEPT AREA 175.8 sq. in.
FUEL CAPACITY	GALLONS	17.0	LITERS 64.0
GENERAL MEASUREMENTS	WHEELBASE	110.5 in.	LENGTH 200.4 in.
	TEST WEIGHT	3750 lbs.	HEIGHT 58.7 in.
HEADROOM	FRONT	39.4 in.	REAR 37.8 in.
LEGROOM	FRONT	42.3 in.	REAR 37.6 in.
SHOULDER ROOM	FRONT	58.7 in.	REAR 58.6 in.
HIPROOM	FRONT	56.4 in.	REAR 57.2 in.
INTERIOR VOLUME	FRONT	56.6 cu. ft.	REAR 48.2 cu. ft.
	COMB	105 cu. ft.	TRUNK 18.6 cu. ft. (Full Size Spare: 15.9 cu. ft.)
MAXIMUM PAYLOAD CAPACITY (INCLUDING PASSENGERS)	1140 lbs.		
EPA MILEAGE EST. (MPG)	CITY 17	HIGHWAY 28	COMBINED 21

Chevrolet Tahoe

5.3L



TEST VEHICLE DESCRIPTION

MAKE Chevrolet	MODEL Tahoe PPV – 2WD		SALES CODE NO. CC10706
ENGINE DISPLACEMENT	CUBIC INCHES 325	LITERS	5.3
FUEL SYSTEM	SFI (E85 Capable)		EXHAUST Single
HORSEPOWER (SAE NET)	320 Hp @ 5400 RPM		ALTERNATOR 160 AMP
TORQUE	335 ft. – lbs. @ 4000 RPM		BATTERY 660 CCA
COMPRESSION RATIO	9.9:1		
TRANSMISSION	MODEL 6L80E	TYPE 6-Speed Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	3.08 Rear Wheel Drive, Heavy Duty Locking Differential		
STEERING	Power Rack and Pinion		
TURNING CIRCLE (CURB TO CURB)	39 ft.		
TIRE SIZE, LOAD & SPEED RATING	P265/60R17, 108V, Goodyear RSA		
SUSPENSION TYPE (FRONT)	Independent Single Coil Over Shock with Stabilizer Bar		
SUSPENSION TYPE (REAR)	Multi-Link with Coil Springs		
GROUND CLEARANCE, MINIMUM	8.0"	LOCATION Rear Axle	
BRAKE SYSTEM	Vacuum Boost, Power, Anti-Lock		
BRAKES, FRONT	TYPE Vented Disc	SWEPT AREA	256.6 sq. in.
BRAKES, REAR	TYPE Vented Disc	SWEPT AREA	248 sq. in.
FUEL CAPACITY	GALLONS 26.0	LITERS	98.0
GENERAL MEASUREMENTS	WHEELBASE 116 in.	LENGTH	202 in.
	TEST WEIGHT 5312 lbs.	HEIGHT	73.9 in.
HEADROOM	FRONT 41.1 in.	REAR	39.2 in.
LEGROOM	FRONT 41.3 in.	REAR	39.0 in.
SHOULDER ROOM	FRONT 65.2 in.	REAR	65.2 in.
HIPROOM	FRONT 60.3 in.	REAR	60.6 in.
INTERIOR VOLUME	FRONT 64.1 cu. ft.	REAR	57.7 cu. ft.
	COMB 121.8 cu. ft.	TRUNK	108.9 cu. ft.
MAXIMUM PAYLOAD CAPACITY (INCLUDING PASSENGERS)	1516 lbs.		
EPA MILEAGE EST. (MPG)	CITY 15	HIGHWAY 21	COMBINED 17

2014.5 Dodge Charger

2.65 3.6L



TEST VEHICLE DESCRIPTION

MAKE 2014.5 Dodge	MODEL Charger	SALES CODE NO. 27A	
ENGINE DISPLACEMENT	CUBIC INCHES 220	LITERS	3.6
FUEL SYSTEM	Sequential Port Fuel Injection	EXHAUST	Dual
HORSEPOWER (SAE NET)	292 Hp @ 6400 RPM	ALTERNATOR	220 AMP
TORQUE	260 ft. – lbs. @ 4400 RPM	BATTERY	800 CCA
COMPRESSION RATIO	10.2:1		
TRANSMISSION	MODEL A580	TYPE 5 Speed Electronic Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	2.65:1		
STEERING	Rack & Pinion with Hydraulic Power Assist		
TURNING CIRCLE (CURB TO CURB)	37.7 ft.		
TIRE SIZE, LOAD & SPEED RATING	P225/60R18, 99W, Goodyear Eagle RSA		
SUSPENSION TYPE (FRONT)	Independent SLA with Virtual Ball Joint LCA, Coil Spring, Sway Bar		
SUSPENSION TYPE (REAR)	Independent Multi-Link, Coil Spring, Sway Bar		
GROUND CLEARANCE, MINIMUM	5.1"	LOCATION Fascia Belly Pan	
BRAKE SYSTEM	Power, Dual Piston Front/Single Piston Rear, Anti-Lock		
BRAKES, FRONT	TYPE Vented Disc	SWEPT AREA	388 sq. in.
BRAKES, REAR	TYPE Vented Disc	SWEPT AREA	296 sq. in.
FUEL CAPACITY	GALLONS 19.0	LITERS	72.0
GENERAL MEASUREMENTS	WHEELBASE 120.0 in.	LENGTH	199.9 in.
	TEST WEIGHT 4055 lbs.	HEIGHT	58.4 in.
HEADROOM	FRONT 38.6 in.	REAR	36.7 in.
LEGROOM	FRONT 41.8 in.	REAR	40.1 in.
SHOULDER ROOM	FRONT 59.5 in.	REAR	57.9 in.
HIPROOM	FRONT 56.2 in.	REAR	56.1 in.
INTERIOR VOLUME	FRONT 55.6 cu. ft.	REAR	49.31 cu. ft.
	COMB 104.7 cu. ft.	TRUNK	16.5 cu. ft.
MAXIMUM PAYLOAD CAPACITY (INCLUDING PASSENGERS)	1111 lbs.		
EPA MILEAGE EST. (MPG)	CITY 18	HIGHWAY 27	COMBINED 21

Dodge Charger

2.65 5.7L



TEST VEHICLE DESCRIPTION

MAKE Dodge	MODEL Charger	SALES CODE NO. 29A	
ENGINE DISPLACEMENT	CUBIC INCHES 345	LITERS	5.7
FUEL SYSTEM	Sequential Port Fuel Injection	EXHAUST	Dual
HORSEPOWER (SAE NET)	370 Hp @ 5150 RPM	ALTERNATOR	220 AMP
TORQUE	397 ft. – lbs. @ 4250 RPM	BATTERY	800 CCA
COMPRESSION RATIO	10.5:1		
TRANSMISSION	MODEL A580	TYPE 5 Speed Electronic Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	2.65:1		
STEERING	Rack & Pinion with Hydraulic Power Assist		
TURNING CIRCLE (CURB TO CURB)	37.7 ft.		
TIRE SIZE, LOAD & SPEED RATING	P225/60R18, 99W, Goodyear Eagle RSA		
SUSPENSION TYPE (FRONT)	Independent SLA with Virtual Ball Joint LCA, Coil Spring, Sway Bar		
SUSPENSION TYPE (REAR)	Independent Multi-Link, Coil Spring, Sway Bar		
GROUND CLEARANCE, MINIMUM	5.1"	LOCATION Fascia Belly Pan	
BRAKE SYSTEM	Power, Dual Piston Front/Single Piston Rear, Anti-Lock		
BRAKES, FRONT	TYPE Vented Disc	SWEPT AREA	289 sq. in.
BRAKES, REAR	TYPE Vented Disc	SWEPT AREA	291 sq. in.
FUEL CAPACITY	GALLONS 19.0	LITERS	72.0
GENERAL MEASUREMENTS	WHEELBASE 120.0 in.	LENGTH	199.9 in.
	TEST WEIGHT 4281 lbs.	HEIGHT	58.4 in.
HEADROOM	FRONT 38.6 in.	REAR	36.7 in.
LEGROOM	FRONT 41.8 in.	REAR	40.1 in.
SHOULDER ROOM	FRONT 59.5 in.	REAR	57.9 in.
HIPROOM	FRONT 56.2 in.	REAR	56.1 in.
INTERIOR VOLUME	FRONT 55.6 cu. ft.	REAR	49.31 cu. ft.
	COMB 104.7 cu. ft.	TRUNK	16.5 cu. ft.
MAXIMUM PAYLOAD CAPACITY (INCLUDING PASSENGERS)	1101 lbs.		
EPA MILEAGE EST. (MPG)	CITY 15	HIGHWAY 25	COMBINED 18

Dodge Charger

3.07 3.6L



TEST VEHICLE DESCRIPTION

MAKE Dodge	MODEL Charger		SALES CODE NO. 27A
ENGINE DISPLACEMENT	CUBIC INCHES 220	LITERS	3.6
FUEL SYSTEM	Sequential Port Fuel Injection		EXHAUST Dual
HORSEPOWER (SAE NET)	292 Hp @ 6400 RPM		ALTERNATOR 220 AMP
TORQUE	260 ft. – lbs. @ 4400 RPM		BATTERY 800 CCA
COMPRESSION RATIO	10.2:1		
TRANSMISSION	MODEL A580	TYPE 5 Speed Electronic Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	3.07:1		
STEERING	Rack & Pinion with Hydraulic Power Assist		
TURNING CIRCLE (CURB TO CURB)	37.7 ft.		
TIRE SIZE, LOAD & SPEED RATING	P225/60R18, 99W, Goodyear Eagle RSA		
SUSPENSION TYPE (FRONT)	Independent SLA with Virtual Ball Joint LCA, Coil Spring, Sway Bar		
SUSPENSION TYPE (REAR)	Independent Multi-Link, Coil Spring, Sway Bar		
GROUND CLEARANCE, MINIMUM	5.1"	LOCATION Fascia Belly Pan	
BRAKE SYSTEM	Power, Dual Piston Front/Single Piston Rear, Anti-Lock		
BRAKES, FRONT	TYPE Vented Disc	SWEPT AREA	289 sq. in.
BRAKES, REAR	TYPE Vented Disc	SWEPT AREA	291 sq. in.
FUEL CAPACITY	GALLONS 19.0	LITERS	72.0
GENERAL MEASUREMENTS	WHEELBASE 120.0 in.	LENGTH	199.9 in.
	TEST WEIGHT 4097 lbs.	HEIGHT	58.4 in.
HEADROOM	FRONT 38.6 in.	REAR	36.7 in.
LEGROOM	FRONT 41.8 in.	REAR	40.1 in.
SHOULDER ROOM	FRONT 59.5 in.	REAR	57.9 in.
HIPROOM	FRONT 56.2 in.	REAR	56.1 in.
INTERIOR VOLUME	FRONT 55.6 cu. ft.	REAR	49.31 cu. ft.
	COMB 104.7 cu. ft.	TRUNK	16.5 cu. ft.
MAXIMUM PAYLOAD CAPACITY (INCLUDING PASSENGERS)	1111 lbs.		
EPA MILEAGE EST. (MPG)	CITY 18	HIGHWAY 27	COMBINED 21

2014.5 Dodge Charger

2.65 5.7L



TEST VEHICLE DESCRIPTION

MAKE 2014.5 Dodge	MODEL Charger		SALES CODE NO. 29A
ENGINE DISPLACEMENT	CUBIC INCHES 345	LITERS	5.7
FUEL SYSTEM	Sequential Port Fuel Injection		EXHAUST Dual
HORSEPOWER (SAE NET)	370 Hp @ 5150 RPM		ALTERNATOR 220 AMP
TORQUE	397 ft. – lbs. @ 4250 RPM		BATTERY 800 CCA
COMPRESSION RATIO	10.5:1		
TRANSMISSION	MODEL A580	TYPE 5 Speed Electronic Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	2.65:1		
STEERING	Rack & Pinion with Hydraulic Power Assist		
TURNING CIRCLE (CURB TO CURB)	37.7 ft.		
TIRE SIZE, LOAD & SPEED RATING	P225/60R18, 99W, Goodyear Eagle RSA		
SUSPENSION TYPE (FRONT)	Independent SLA with Virtual Ball Joint LCA, Coil Spring, Sway Bar		
SUSPENSION TYPE (REAR)	Independent Multi-Link, Coil Spring, Sway Bar		
GROUND CLEARANCE, MINIMUM	5.1"	LOCATION Fascia Belly Pan	
BRAKE SYSTEM	Power, Dual Piston Front/Single Piston Rear, Anti-Lock		
BRAKES, FRONT	TYPE Vented Disc	SWEPT AREA	388 sq. in.
BRAKES, REAR	TYPE Vented Disc	SWEPT AREA	296 sq. in.
FUEL CAPACITY	GALLONS 19.0	LITERS	72.0
GENERAL MEASUREMENTS	WHEELBASE 120.0 in.	LENGTH	199.9 in.
	TEST WEIGHT 4324 lbs.	HEIGHT	58.4 in.
HEADROOM	FRONT 38.6 in.	REAR	36.7 in.
LEGROOM	FRONT 41.8 in.	REAR	40.1 in.
SHOULDER ROOM	FRONT 59.5 in.	REAR	57.9 in.
HIPROOM	FRONT 56.2 in.	REAR	56.1 in.
INTERIOR VOLUME	FRONT 55.6 cu. ft.	REAR	49.31 cu. ft.
	COMB 104.7 cu. ft.	TRUNK	16.5 cu. ft.
MAXIMUM PAYLOAD CAPACITY (INCLUDING PASSENGERS)	1101 lbs.		
EPA MILEAGE EST. (MPG)	CITY 15	HIGHWAY 25	COMBINED 18

2014.5 Dodge Charger AWD 3.06 5.7L



TEST VEHICLE DESCRIPTION

MAKE 2014.5 Dodge	MODEL Charger AWD	SALES CODE NO. 29A	
ENGINE DISPLACEMENT	CUBIC INCHES 345	LITERS	5.7
FUEL SYSTEM	Sequential Port Fuel Injection	EXHAUST	Dual
HORSEPOWER (SAE NET)	370 Hp @ 5150 RPM	ALTERNATOR	220 AMP
TORQUE	397 ft. – lbs. @ 4250 RPM	BATTERY	800 CCA
COMPRESSION RATIO	10.5:1		
TRANSMISSION	MODEL A580	TYPE 5 Speed Electronic Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	3.06:1 with All-Wheel Drive		
STEERING	Rack & Pinion with Hydraulic Power Assist		
TURNING CIRCLE (CURB TO CURB)	38.7 ft.		
TIRE SIZE, LOAD & SPEED RATING	P245/55R18, 103V, Goodyear Eagle RSA		
SUSPENSION TYPE (FRONT)	Independent SLA LCA, Coil Spring, Sway Bar		
SUSPENSION TYPE (REAR)	Independent Multi-Link, Coil Spring, Sway Bar		
GROUND CLEARANCE, MINIMUM	5.1"	LOCATION Fascia Belly Pan	
BRAKE SYSTEM	Power, Dual Piston Front/Single Piston Rear, Anti-Lock		
BRAKES, FRONT	TYPE Vented Disc	SWEPT AREA	388 sq. in.
BRAKES, REAR	TYPE Vented Disc	SWEPT AREA	296 sq. in.
FUEL CAPACITY	GALLONS 19.0	LITERS	72.0
GENERAL MEASUREMENTS	WHEELBASE 120.0 in.	LENGTH	199.9 in.
	TEST WEIGHT 4521 lbs.	HEIGHT	58.4 in.
HEADROOM	FRONT 38.6 in.	REAR	36.7 in.
LEGROOM	FRONT 41.8 in.	REAR	40.1 in.
SHOULDER ROOM	FRONT 59.5 in.	REAR	57.9 in.
HIPROOM	FRONT 56.2 in.	REAR	56.1 in.
INTERIOR VOLUME	FRONT 55.6 cu. ft.	REAR	49.31 cu. ft.
	COMB 104.7 cu. ft.	TRUNK	16.5 cu. ft.
EPA MILEAGE EST. (MPG)	CITY 15	HIGHWAY 23	COMBINED 18

Ford Police Interceptor

FWD 3.5L



TEST VEHICLE DESCRIPTION

MAKE Ford	MODEL PI Sedan FWD		SALES CODE NO. P2L, 998	
ENGINE DISPLACEMENT	CUBIC INCHES 214		LITERS 3.5	
FUEL SYSTEM	Sequential Multi-Port Fuel Injection		EXHAUST Quasi-Dual	
HORSEPOWER (SAE NET)	288 Hp @ 6500 RPM		ALTERNATOR 220 AMP	
TORQUE	254 ft. – lbs. @ 4000 RPM		BATTERY 750 CCA	
COMPRESSION RATIO	10.8:1			
TRANSMISSION	MODEL 6F50		TYPE 6 Speed Electronic Automatic	
	LOCKUP TORQUE CONVERTER? Yes			
	OVERDRIVE? Yes			
AXLE RATIO	3.16:1			
STEERING	Electric Power Assist Rack & Pinion			
TURNING CIRCLE (CURB TO CURB)	38.4 ft.			
TIRE SIZE, LOAD & SPEED RATING	P245/55R18, 103V, Goodyear Eagle RSA			
SUSPENSION TYPE (FRONT)	Independent MacPherson Strut with Coil Over Shocks			
SUSPENSION TYPE (REAR)	Multi-Link Full Independent Suspension			
GROUND CLEARANCE, MINIMUM	6.0"		LOCATION Front Exhaust	
BRAKE SYSTEM	Power, Dual Piston Front/Single Piston Rear, 4 Circuit and Anti-Lock			
BRAKES, FRONT	TYPE	Vented Disc	SWEPT AREA	313 sq. in.
BRAKES, REAR	TYPE	Vented Disc	SWEPT AREA	265 sq. in.
FUEL CAPACITY	GALLONS	19.0	LITERS	71.9
GENERAL MEASUREMENTS	WHEELBASE	112.9 in.	LENGTH	202.9 in.
	TEST WEIGHT	4269 lbs.	HEIGHT	61.3 in.
HEADROOM	FRONT	39.0 in.	REAR	36.7 in.
LEGROOM	FRONT	41.9 in.	REAR	39.9 in.
SHOULDER ROOM	FRONT	57.9 in.	REAR	56.9 in.
HIPROOM	FRONT	56.3 in.	REAR	55.9 in.
INTERIOR VOLUME	FRONT	54.8 cu. ft.	REAR	48.1 cu. ft.
	COMB	103.0 cu. ft.	TRUNK 16.6 cu. ft. (Standard Full Size Spare)	
EPA MILEAGE EST. (MPG)	CITY 18	HIGHWAY 26	COMBINED 21	

Ford Police Interceptor

AWD 3.7L



TEST VEHICLE DESCRIPTION

MAKE Ford	MODEL PI Sedan AWD		SALES CODE NO. P2M, 99K	
ENGINE DISPLACEMENT	CUBIC INCHES 226		LITERS 3.7	
FUEL SYSTEM	Sequential Multi-Port Fuel Injection		EXHAUST Dual	
HORSEPOWER (SAE NET)	305 Hp @ 6500 RPM		ALTERNATOR 220 AMP	
TORQUE	279 ft. – lbs. @ 4000 RPM		BATTERY 750 CCA	
COMPRESSION RATIO	10.5:1			
TRANSMISSION	MODEL 6F50		TYPE 6 Speed Electronic Automatic	
	LOCKUP TORQUE CONVERTER? Yes			
	OVERDRIVE? Yes			
AXLE RATIO	3.39:1 with All-Wheel Drive			
STEERING	Electric Power Assist Rack & Pinion			
TURNING CIRCLE (CURB TO CURB)	38.4 ft.			
TIRE SIZE, LOAD & SPEED RATING	P245/55R18, 103V, Goodyear Eagle RSA			
SUSPENSION TYPE (FRONT)	Independent MacPherson Strut with Coil Over Shocks			
SUSPENSION TYPE (REAR)	Multi-Link Full Independent Suspension			
GROUND CLEARANCE, MINIMUM	6.0"		LOCATION Front Exhaust	
BRAKE SYSTEM	Power, Dual Piston Front/Single Piston Rear, 4 Circuit and Anti-Lock			
BRAKES, FRONT	TYPE	Vented Disc	SWEPT AREA	313 sq. in.
BRAKES, REAR	TYPE	Vented Disc	SWEPT AREA	265 sq. in.
FUEL CAPACITY	GALLONS	19.0	LITERS	71.9
GENERAL MEASUREMENTS	WHEELBASE	112.9 in.	LENGTH	202.9 in.
	TEST WEIGHT	4334 lbs.	HEIGHT	61.3 in.
HEADROOM	FRONT	39.0 in.	REAR	36.7 in.
LEGROOM	FRONT	41.9 in.	REAR	39.9 in.
SHOULDER ROOM	FRONT	57.9 in.	REAR	56.9 in.
HIPROOM	FRONT	56.3 in.	REAR	55.9 in.
INTERIOR VOLUME	FRONT	54.8 cu. ft.	REAR	48.1 cu. ft.
	COMB	103.0 cu. ft.	TRUNK 16.6 cu. ft. (Standard Full Size Spare)	
EPA MILEAGE EST. (MPG)	CITY 18	HIGHWAY 25	COMBINED 21	

Ford Police Interceptor AWD Ecoboost 3.5L



TEST VEHICLE DESCRIPTION

MAKE Ford	MODEL PI Sedan Ecoboost AWD		SALES CODE NO. P2M, 99T
ENGINE DISPLACEMENT	CUBIC INCHES 214	LITERS 3.5	
FUEL SYSTEM	Sequential Direct Injection		EXHAUST Dual
HORSEPOWER (SAE NET)	365 Hp @ 5500 RPM		ALTERNATOR 220 AMP
TORQUE	350 ft. – lbs. @ 1500 - 5250 RPM		BATTERY 750 CCA
COMPRESSION RATIO	10.0:1		
TRANSMISSION	MODEL 6F55	TYPE 6 Speed Electronic Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	3.16:1 with All-Wheel Drive		
STEERING	Electric Power Assist Rack & Pinion		
TURNING CIRCLE (CURB TO CURB)	38.4 ft.		
TIRE SIZE, LOAD & SPEED RATING	P245/55R18, 103V, Goodyear Eagle RSA		
SUSPENSION TYPE (FRONT)	Independent MacPherson Strut with Coil Over Shocks		
SUSPENSION TYPE (REAR)	Multi-Link Full Independent Suspension		
GROUND CLEARANCE, MINIMUM	5.3"	LOCATION Front Exhaust	
BRAKE SYSTEM	Power, Dual Piston Front/Single Piston Rear, 4 Circuit and Anti-Lock		
BRAKES, FRONT	TYPE Vented Disc	SWEPT AREA	313 sq. in.
BRAKES, REAR	TYPE Vented Disc	SWEPT AREA	265 sq. in.
FUEL CAPACITY	GALLONS 19.0	LITERS	71.9
GENERAL MEASUREMENTS	WHEELBASE 112.9 in.	LENGTH	202.9 in.
	TEST WEIGHT 4406 lbs.	HEIGHT	61.3 in.
HEADROOM	FRONT 39.0 in.	REAR	36.7 in.
LEGROOM	FRONT 41.9 in.	REAR	39.9 in.
SHOULDER ROOM	FRONT 57.9 in.	REAR	56.9 in.
HIPROOM	FRONT 56.3 in.	REAR	55.9 in.
INTERIOR VOLUME	FRONT 54.8 cu. ft.	REAR	48.1 cu. ft.
	COMB 103.0 cu. ft.	TRUNK 16.6 cu. ft. (Standard Full Size Spare)	
EPA MILEAGE EST. (MPG)	CITY 16	HIGHWAY 23	COMBINED 18

Ford Police Interceptor Utility AWD 3.7L



TEST VEHICLE DESCRIPTION

MAKE Ford	MODEL PI Utility AWD		SALES CODE NO. K8A, 99R
ENGINE DISPLACEMENT	CUBIC INCHES 226	LITERS 3.7	
FUEL SYSTEM	Sequential Multi-Port Fuel Injection		EXHAUST Dual
HORSEPOWER (SAE NET)	304 Hp @ 6250 RPM		ALTERNATOR 220 AMP
TORQUE	279 ft. – lbs. @ 4000 RPM		BATTERY 750 CCA
COMPRESSION RATIO	10.5:1		
TRANSMISSION	MODEL 6F55	TYPE 6 Speed Electronic Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	3.65:1 with All-Wheel Drive		
STEERING	Electric Power Assist Rack & Pinion		
TURNING CIRCLE (CURB TO CURB)	38.8 ft.		
TIRE SIZE, LOAD & SPEED RATING	P245/55R18, 103V, Goodyear Eagle RSA		
SUSPENSION TYPE (FRONT)	Independent MacPherson Strut with Coil Over Shocks		
SUSPENSION TYPE (REAR)	Multi-Link Full Independent Suspension		
GROUND CLEARANCE, MINIMUM	6.5"	LOCATION Front Exhaust	
BRAKE SYSTEM	Power, Dual Piston Front/Single Piston Rear, 4 Circuit and Anti-Lock		
BRAKES, FRONT	TYPE Vented Disc	SWEPT AREA	313 sq. in.
BRAKES, REAR	TYPE Vented Disc	SWEPT AREA	265 sq. in.
FUEL CAPACITY	GALLONS 18.6	LITERS	70.4
GENERAL MEASUREMENTS	WHEELBASE 112.6 in.	LENGTH	197.1 in.
	TEST WEIGHT 4654 lbs.	HEIGHT	69.2 in. (without roof rack)
HEADROOM	FRONT 41.4 in.	REAR	40.1 in.
LEGROOM	FRONT 40.6 in.	REAR	41.6 in.
SHOULDER ROOM	FRONT 61.3 in.	REAR	60.9 in.
HIPROOM	FRONT 57.3 in.	REAR	56.8 in.
INTERIOR VOLUME	FRONT 59.7 cu. ft.	REAR	58.7 cu. ft.
	COMB 118.4 cu. ft.	MAX CARGO 85.1 cu. ft. (Max Cargo behind front seats, with rear seats folded down)	
EPA MILEAGE EST. (MPG)	CITY 16	HIGHWAY 21	COMBINED 18

2014.5 Ford Police Interceptor AWD Ecoboost 3.5L



TEST VEHICLE DESCRIPTION

MAKE 2014.5 Ford	MODEL PI Sedan Ecoboost AWD	SALES CODE NO. P2M, 99T	
ENGINE DISPLACEMENT	CUBIC INCHES 214	LITERS	3.5
FUEL SYSTEM	Sequential Direct Injection	EXHAUST	Dual
HORSEPOWER (SAE NET)	365 Hp @ 5500 RPM	ALTERNATOR	220 AMP
TORQUE	350 ft. – lbs. @ 1500-5250 RPM	BATTERY	750 CCA
COMPRESSION RATIO	10.0:1		
TRANSMISSION	MODEL 6F55	TYPE 6 Speed Electronic Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	3.16:1 with All-Wheel Drive		
STEERING	Electric Power Assist Rack & Pinion		
TURNING CIRCLE (CURB TO CURB)	38.4 ft.		
TIRE SIZE, LOAD & SPEED RATING	P245/55R18, 103V, Goodyear Eagle RSA		
SUSPENSION TYPE (FRONT)	Independent MacPherson Strut with Coil Over Shocks		
SUSPENSION TYPE (REAR)	Multi-Link Full Independent Suspension		
GROUND CLEARANCE, MINIMUM	5.3"	LOCATION Front Exhaust	
	Power, Dual Piston Front/Single Piston Rear, 4 Circuit and Anti-Lock		
BRAKE SYSTEM	Power, Dual Piston Front/Single Piston Rear, 4 Circuit and Anti-Lock		
BRAKES, FRONT	TYPE Vented Disc	SWEPT AREA	313 sq. in.
BRAKES, REAR	TYPE Vented Disc	SWEPT AREA	265 sq. in.
FUEL CAPACITY	GALLONS 19.0	LITERS	71.9
GENERAL MEASUREMENTS	WHEELBASE 112.9 in.	LENGTH	202.9 in.
	TEST WEIGHT 4371 lbs.	HEIGHT	61.3 in.
HEADROOM	FRONT 39.0 in.	REAR	36.7 in.
LEGROOM	FRONT 41.9 in.	REAR	39.9 in.
SHOULDER ROOM	FRONT 57.9 in.	REAR	56.9 in.
HIPROOM	FRONT 56.3 in.	REAR	55.9 in.
INTERIOR VOLUME	FRONT 54.8 cu. ft.	REAR	48.1 cu. ft.
	COMB 103.0 cu. ft.	TRUNK 16.6 cu. ft. (Standard Full Size Spare)	
EPA MILEAGE EST. (MPG)	CITY 16	HIGHWAY 23	COMBINED 18

2014.5 Ford Police Interceptor Utility AWD Ecoboost 3.5L



TEST VEHICLE DESCRIPTION

MAKE 2014.5 Ford	MODEL PI Sedan Utility AWD Ecoboost		SALES CODE NO. K8A, 99T
ENGINE DISPLACEMENT	CUBIC INCHES 214	LITERS 3.5	
FUEL SYSTEM	Sequential Direct Injection	EXHAUST Dual	
HORSEPOWER (SAE NET)	365 Hp @ 5500 RPM	ALTERNATOR 220 AMP	
TORQUE	350 ft. – lbs. @ 1500-5250 RPM	BATTERY 750 CCA	
COMPRESSION RATIO	10.0:1		
TRANSMISSION	MODEL 6F55	TYPE 6 Speed Electronic Automatic	
	LOCKUP TORQUE CONVERTER? Yes		
	OVERDRIVE? Yes		
AXLE RATIO	3.16:1 with All-Wheel Drive		
STEERING	Electric Power Assist Rack & Pinion		
TURNING CIRCLE (CURB TO CURB)	38.8 ft.		
TIRE SIZE, LOAD & SPEED RATING	P245/55R18, 103V, Goodyear Eagle RSA		
SUSPENSION TYPE (FRONT)	Independent MacPherson Strut with Coil Over Shocks		
SUSPENSION TYPE (REAR)	Multi-Link Full Independent Suspension		
GROUND CLEARANCE, MINIMUM	6.4"	LOCATION Front Exhaust	
	BRAKE SYSTEM Power, Dual Piston Front/Single Piston Rear, 4 Circuit and Anti-Lock		
BRAKES, FRONT	TYPE Vented Disc	SWEPT AREA	313 sq. in.
BRAKES, REAR	TYPE Vented Disc	SWEPT AREA	265 sq. in.
FUEL CAPACITY	GALLONS 18.6	LITERS	70.4
GENERAL MEASUREMENTS	WHEELBASE 112.6 in.	LENGTH	197.1 in.
	TEST WEIGHT 4775 lbs.	HEIGHT	69.2 in. (without roof rack)
HEADROOM	FRONT 41.4 in.	REAR	40.1 in.
LEGROOM	FRONT 40.6 in.	REAR	41.6 in.
SHOULDER ROOM	FRONT 61.3 in.	REAR	60.9 in.
HIPROOM	FRONT 57.3 in.	REAR	56.8 in.
INTERIOR VOLUME	FRONT 59.7 cu. ft.	REAR	58.7 cu. ft.
	COMB 118.4 cu. ft.	MAX CARGO 85.1 cu. ft. (Max Cargo behind front seats, with rear seats folded down)	
EPA MILEAGE EST. (MPG)	CITY 15	HIGHWAY 20	COMBINED 17

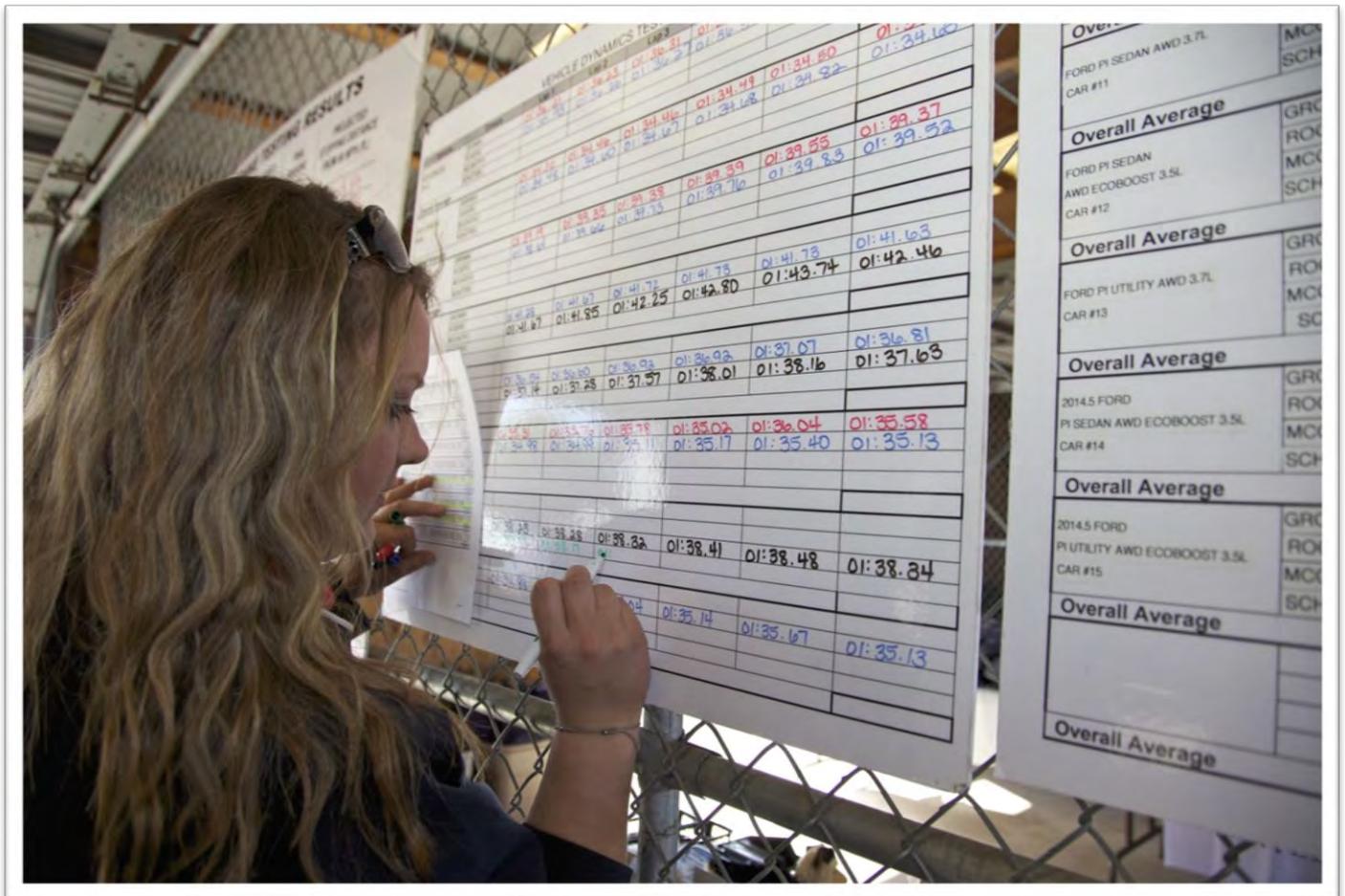
VEHICLE DYNAMICS TESTING

TEST OBJECTIVE

To determine each vehicle's high-speed pursuit or emergency response handling characteristics and performance in comparison to the other vehicles in the test group. The course used is a 2-mile road-racing type configuration, containing hills, curves, and corners. The course simulates actual conditions encountered in pursuit or emergency driving situations in the field, with the exception of other traffic. The evaluation is a true test of the success or failure of the vehicle manufacturers to offer vehicles that provide the optimum balance between handling (suspension components), acceleration (usable horsepower), and braking characteristics.

TEST METHODOLOGY

Each vehicle is driven over the course a total of 32 timed laps, using four separate drivers, each driving an 8 lap series. The final score for the vehicle is the combined average (from the 4 drivers) of the 5 fastest laps for each driver during the 8 lap series.



Grattan Raceway Park



7201 Lessiter
Belding, Michigan 48809



Arrows indicate
Michigan State Police
Road Test Course and
Direction of Travel.

VEHICLE DYNAMICS TESTING ON SEPTEMBER 23, 2013

Vehicles	Drivers	Lap 1	Lap 2	Lap 3	Lap 4	Lap 5	Average
Chevrolet Caprice 3.6L	GROMAK	01:36.21	01:36.23	01:36.31	01:36.49	01:36.54	01:36.36
	ROGERS	01:35.93	01:36.26	01:36.27	01:36.51	01:36.56	01:36.31
	MCCARTHY	01:36.53	01:36.60	01:36.63	01:36.81	01:36.86	01:36.69
	SCHUTTER	01:37.03	01:37.09	01:37.11	01:37.27	01:37.46	01:37.19
Overall Average							01:36.64
Chevrolet Caprice 6.0L	GROMAK	01:34.31	01:34.46	01:34.46	01:34.49	01:34.50	01:34.44
	ROGERS	01:34.48	01:34.60	01:34.67	01:34.68	01:34.82	01:34.65
	MCCARTHY	01:34.97	01:35.00	01:35.14	01:35.15	01:35.30	01:35.11
	SCHUTTER	01:35.18	01:35.55	01:35.85	01:35.91	01:36.13	01:35.72
Overall Average							01:34.98
Chevrolet Impala 3.6L	GROMAK	01:39.19	01:39.35	01:39.38	01:39.39	01:39.55	01:39.37
	ROGERS	01:39.64	01:39.66	01:39.73	01:39.76	01:39.83	01:39.72
	MCCARTHY	01:40.09	01:40.13	01:40.21	01:40.22	01:40.30	01:40.19
	SCHUTTER	01:40.67	01:41.12	01:41.13	01:41.32	01:41.33	01:41.11
Overall Average							01:40.10
Chevrolet Tahoe 5.3L	GROMAK	01:41.85	01:41.97	01:42.16	01:42.19	01:42.54	01:42.14
	ROGERS	01:41.28	01:41.67	01:41.72	01:41.73	01:41.73	01:41.63
	MCCARTHY	01:41.67	01:41.85	01:42.25	01:42.80	01:43.74	01:42.46
	SCHUTTER	01:42.45	01:43.02	01:43.28	01:43.55	01:43.62	01:43.18
Overall Average							01:42.35
2014.5 Dodge Charger 2.65 3.6L	GROMAK	01:36.73	01:36.93	01:37.01	01:37.15	01:37.17	01:37.00
	ROGERS	01:36.54	01:36.60	01:36.92	01:36.92	01:37.07	01:36.81
	MCCARTHY	01:37.14	01:37.28	01:37.57	01:38.01	01:38.17	01:37.63
	SCHUTTER	01:37.42	01:37.45	01:37.80	01:37.81	01:37.98	01:37.69
Overall Average							01:37.28
Dodge Charger 2.65 5.7L	GROMAK	01:35.31	01:35.76	01:35.78	01:36.02	01:36.04	01:35.78
	ROGERS	01:34.98	01:34.99	01:35.12	01:35.17	01:35.40	01:35.13
	MCCARTHY	01:35.89	01:36.22	01:36.42	01:36.47	01:36.69	01:36.34
	SCHUTTER	01:36.16	01:36.77	01:36.81	01:36.94	01:37.01	01:36.74
Overall Average							01:36.00
Dodge Charger 3.07 3.6L	GROMAK	01:37.10	01:37.19	01:37.21	01:37.22	01:37.24	01:37.19
	ROGERS	01:36.05	01:36.32	01:36.73	01:36.78	01:36.97	01:36.57
	MCCARTHY	01:38.23	01:38.28	01:38.32	01:38.41	01:38.48	01:38.34
	SCHUTTER	01:37.77	01:38.17	01:38.17	01:38.22	01:38.29	01:38.12
Overall Average							01:37.56
2014.5 Dodge Charger 2.65 5.7L	GROMAK	01:35.50	01:35.51	01:35.57	01:35.88	01:35.94	01:35.68
	ROGERS	01:34.88	01:34.89	01:35.04	01:35.14	01:35.67	01:35.12
	MCCARTHY	01:35.62	01:35.94	01:35.97	01:36.19	01:36.27	01:36.00
	SCHUTTER	01:35.95	01:36.04	01:36.51	01:36.60	01:36.89	01:36.40
Overall Average							01:35.80
2014.5 Dodge Charger AWD 3.06 5.7L	GROMAK	01:34.40	01:34.41	01:34.55	01:34.60	01:34.64	01:34.52
	ROGERS	01:33.85	01:34.13	01:34.23	01:34.23	01:34.40	01:34.17
	MCCARTHY	01:34.38	01:34.55	01:34.59	01:34.90	01:34.93	01:34.67
	SCHUTTER	01:35.52	01:35.57	01:35.66	01:35.74	01:35.76	01:35.65
Overall Average							01:34.75

VEHICLE DYNAMICS TESTING ON SEPTEMBER 23, 2013

Vehicles	Drivers	Lap 1	Lap 2	Lap 3	Lap 4	Lap 5	Average
Ford PI Sedan FWD 3.5L	GROMAK	01:37.85	01:37.88	01:38.00	01:38.06	01:38.21	01:38.00
	ROGERS	01:38.06	01:38.23	01:38.28	01:38.36	01:38.44	01:38.27
	MCCARTHY	01:39.10	01:39.50	01:39.55	01:39.72	01:39.83	01:39.54
	SCHUTTER	01:38.51	01:39.22	01:39.29	01:39.45	01:39.50	01:39.19
Overall Average							01:38.75
Ford PI Sedan AWD 3.7L	GROMAK	01:37.11	01:37.28	01:37.29	01:37.42	01:37.52	01:37.32
	ROGERS	01:36.30	01:36.35	01:36.42	01:36.55	01:36.56	01:36.44
	MCCARTHY	01:38.22	01:38.29	01:38.31	01:38.41	01:38.53	01:38.35
	SCHUTTER	01:37.28	01:37.30	01:37.48	01:37.57	01:38.00	01:37.53
Overall Average							01:37.41
Ford PI Sedan AWD Ecoboost 3.5L	GROMAK	01:34.47	01:35.04	01:35.09	01:35.16	01:35.34	01:35.02
	ROGERS	01:34.67	01:34.90	01:35.08	01:35.09	01:35.11	01:34.97
	MCCARTHY	01:35.21	01:35.34	01:35.36	01:35.53	01:35.55	01:35.40
	SCHUTTER	01:35.12	01:35.28	01:35.35	01:35.53	01:35.55	01:35.37
Overall Average							01:35.19
Ford PI Utility AWD 3.7L	GROMAK	01:39.59	01:39.86	01:40.18	01:40.19	01:40.57	01:40.08
	ROGERS	01:39.10	01:39.53	01:39.72	01:39.77	01:39.99	01:39.62
	MCCARTHY	01:39.82	01:40.11	01:40.14	01:40.15	01:40.44	01:40.13
	SCHUTTER	01:40.59	01:40.65	01:40.74	01:40.84	01:41.03	01:40.77
Overall Average							01:40.15
2014.5 Ford PI AWD Ecoboost 3.5L	GROMAK	01:34.28	01:34.29	01:34.57	01:34.63	01:34.68	01:34.49
	ROGERS	01:34.54	01:34.63	01:34.72	01:34.73	01:34.78	01:34.68
	MCCARTHY	01:35.49	01:35.57	01:35.66	01:35.76	01:35.76	01:35.65
	SCHUTTER	01:34.90	01:35.38	01:35.53	01:35.56	01:35.58	01:35.39
Overall Average							01:35.05
2014.5 Ford PI Utility AWD Ecoboost 3.5L	GROMAK	01:37.11	01:37.19	01:37.30	01:37.48	01:37.48	01:37.31
	ROGERS	01:37.17	01:37.26	01:37.46	01:37.47	01:37.47	01:37.37
	MCCARTHY	01:37.84	01:38.13	01:38.13	01:38.30	01:38.37	01:38.15
	SCHUTTER	01:37.68	01:37.74	01:37.92	01:38.23	01:38.23	01:37.96
Overall Average							01:37.70

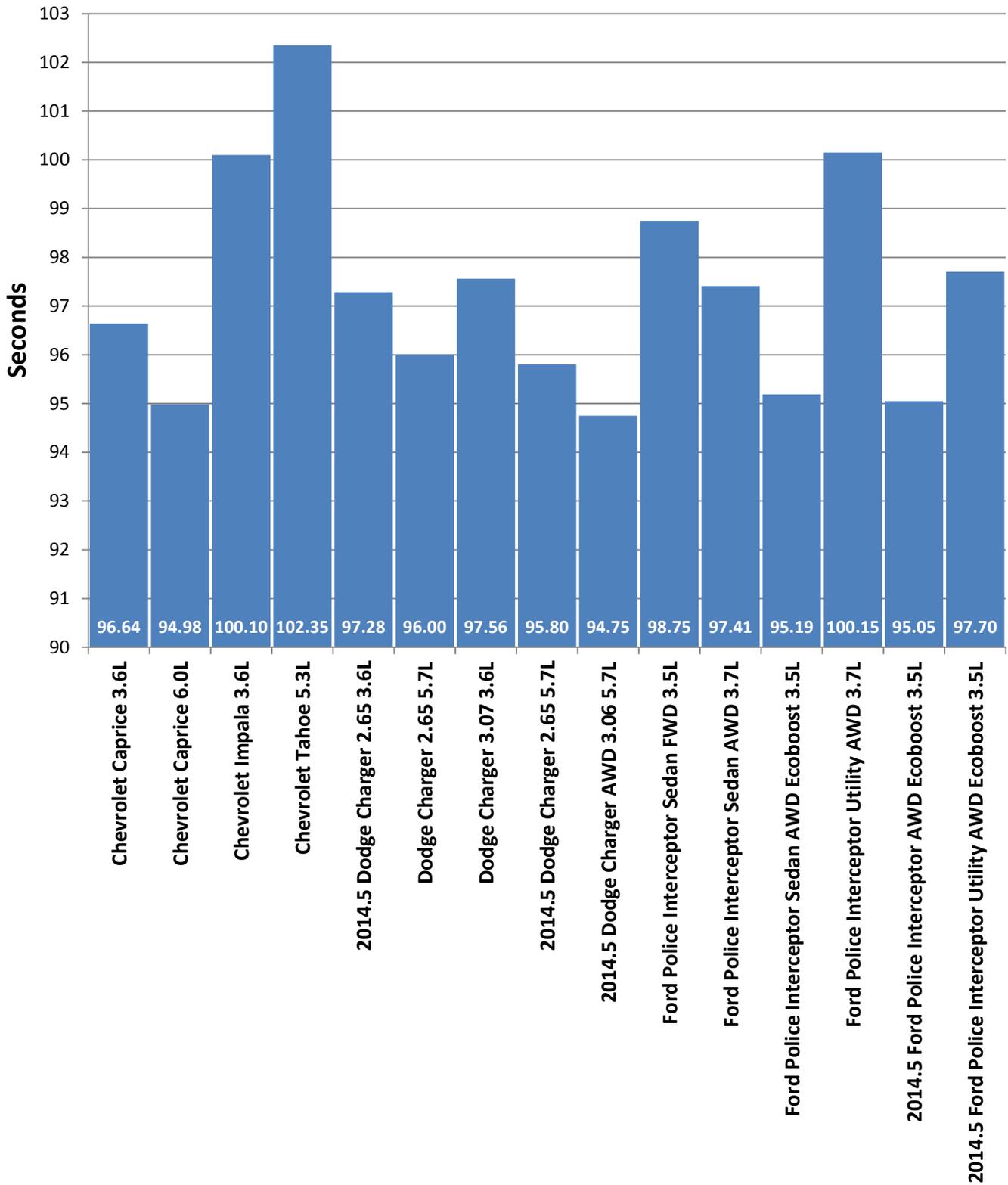
In an effort to maximize each vehicle's performance, we allowed each manufacturer to determine the state of their vehicles' traction and stability control modes while negotiating the vehicle dynamics testing at the Grattan Raceway.

Ford does not offer an option to alter the parameters of such controls and all of their vehicles were therefore tested in a fully activated mode.

Dodge elected to run their vehicles in a partial stability control mode which also deactivates traction control.

Chevrolet deactivated traction control on the Tahoe but ran with stability control full on. The Impala was run in partial stability control mode with traction control deactivated. The Caprice was run in the same mode as the Impala. The Caprice also offers a Sport transmission mode which changes the shift points in the transmission to aid in power train braking. Sport mode was also activated during the dynamics testing.

2014 Vehicle Dynamics



Lap Times in Seconds



ACCELERATION AND TOP SPEED TESTING

ACCELERATION TEST OBJECTIVE

To determine the ability of each test vehicle to accelerate from a standing start to 60 mph, 80 mph, and 100 mph, and determine the distance to reach 110 mph and 120 mph.

ACCELERATION TEST METHODOLOGY

Using a DLS Smart Sensor – Optical non-contact Speed and Distance Sensor in conjunction with a lap top computer, each vehicle is driven through four acceleration sequences, two northbound and two southbound, to allow for wind direction. The four resulting times for each target speed are averaged and the average times used to derive scores on the competitive test for acceleration.

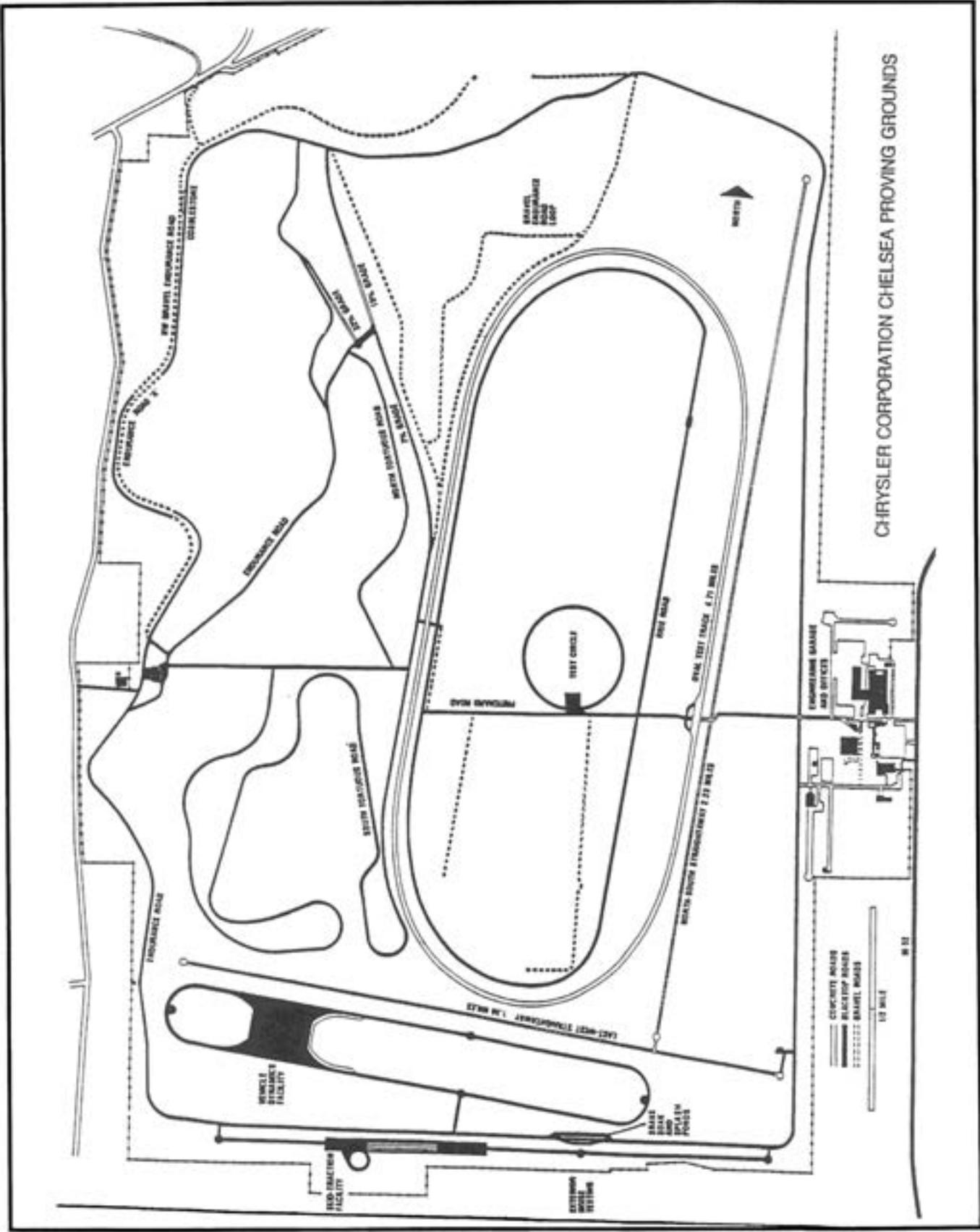
TOP SPEED TEST OBJECTIVE

Determine the actual top speed attainable by each test vehicle within a distance of 14 miles from a standing start.

TOP SPEED TEST METHODOLOGY

Following the fourth acceleration run, each test vehicle continues to accelerate to the top speed attainable within 14 miles from the start of the run. The highest speed attained within the 14 mile distance is the vehicle's score on the competitive test for top speed.





CHRYSLER CORPORATION CHELSEA PROVING GROUNDS

Chevrolet Caprice 3.6L

BEGINNING TIME: 3:34 p.m.
 WIND VELOCITY: 10.2 mph

TEMPERATURE: 65.2° F
 WIND DIRECTION: 322°

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec.	7.66	7.49	7.38	7.28	7.45
0 – 80	14.9 sec.	12.17	12.12	11.79	11.95	12.01
0 – 100	24.6 sec.	18.34	18.53	17.95	18.40	18.31

DISTANCE TO REACH 110 MPH: .44 mile

DISTANCE TO REACH 120 MPH: .69 mile

TOP SPEED ATTAINED: 148 mph

Chevrolet Caprice 6.0L

BEGINNING TIME: 2:17 p.m.
 WIND VELOCITY: 6 mph

TEMPERATURE: 66.1° F
 WIND DIRECTION: 309°

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec.	6.04	6.14	5.92	5.94	6.01
0 – 80	14.9 sec.	9.72	9.87	9.58	9.63	9.70
0 – 100	24.6 sec.	14.33	14.57	14.17	14.32	14.35

DISTANCE TO REACH 110 MPH: .35 mile

DISTANCE TO REACH 120 MPH: .48 mile

TOP SPEED ATTAINED: 155 mph

Chevrolet Impala 3.6L

BEGINNING TIME: 10:31 a.m.
 WIND VELOCITY: 5.1 mph

TEMPERATURE: 59.8° F
 WIND DIRECTION: 324°

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec.	7.77	7.75	7.64	7.51	7.67
0 – 80	14.9 sec.	12.67	12.76	12.36	12.35	12.54
0 – 100	24.6 sec.	19.43	19.76	18.99	19.43	19.40

DISTANCE TO REACH 110 MPH: .48 mile

DISTANCE TO REACH 120 MPH: .74 mile

TOP SPEED ATTAINED: 149 mph

*Michigan State Police minimum requirement.

Chevrolet Tahoe 5.3L

BEGINNING TIME: 12:38 p.m.
 WIND VELOCITY: 9 mph

TEMPERATURE: 64.1° F
 WIND DIRECTION: 310°

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec.	8.25	8.38	8.07	8.17	8.22
0 – 80	14.9 sec.	13.90	14.19	13.63	14.01	13.93
0 – 100	24.6 sec.	21.84	22.69	21.12	22.15	21.95

DISTANCE TO REACH 110 MPH: .61 mile

DISTANCE TO REACH 120 MPH: .89 mile

TOP SPEED ATTAINED: 139 mph

2014.5 Dodge Charger 2.65 3.6L

BEGINNING TIME: 11:03 a.m.
 WIND VELOCITY: 6.3 mph

TEMPERATURE: 61° F
 WIND DIRECTION: 323°

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec.	8.35	8.35	8.46	8.11	8.32
0 – 80	14.9 sec.	13.25	13.35	13.36	13.25	13.30
0 – 100	24.6 sec.	20.86	21.42	21.23	21.63	21.29

DISTANCE TO REACH 110 MPH: .57 mile

DISTANCE TO REACH 120 MPH: .79 mile

TOP SPEED ATTAINED: 139 mph

Dodge Charger 2.65 5.7L

BEGINNING TIME: 4:09 p.m.
 WIND VELOCITY: 11.6 mph

TEMPERATURE: 65.7° F
 WIND DIRECTION: 314°

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec.	6.17	6.33	5.98	6.04	6.13
0 – 80	14.9 sec.	9.42	9.64	9.26	9.36	9.42
0 – 100	24.6 sec.	14.49	14.85	14.41	14.48	14.56

DISTANCE TO REACH 110 MPH: .34 mile

DISTANCE TO REACH 120 MPH: .45 mile

TOP SPEED ATTAINED: 152 mph

*Michigan State Police minimum requirement.

Dodge Charger 3.07 3.6L

BEGINNING TIME: 1:15 p.m.
 WIND VELOCITY: 9 mph

TEMPERATURE: 64.3° F
 WIND DIRECTION: 323°

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec.	7.84	7.85	7.92	7.79	7.85
0 – 80	14.9 sec.	12.28	12.62	12.44	12.28	12.41
0 – 100	24.6 sec.	19.80	20.22	19.76	20.01	19.95

DISTANCE TO REACH 110 MPH: .49 mile

DISTANCE TO REACH 120 MPH: .67 mile

TOP SPEED ATTAINED: 141 mph

2014.5 Dodge Charger 2.65 5.7L

BEGINNING TIME: 5:04 p.m.
 WIND VELOCITY: 6.7 mph

TEMPERATURE: 63.3° F
 WIND DIRECTION: 327°

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec.	6.30	6.18	5.99	6.01	6.12
0 – 80	14.9 sec.	9.63	9.50	9.20	9.24	9.39
0 – 100	24.6 sec.	14.89	14.63	14.33	14.43	14.57

DISTANCE TO REACH 110 MPH: .34 mile

DISTANCE TO REACH 120 MPH: .44 mile

TOP SPEED ATTAINED: 150 mph

2014.5 Dodge Charger AWD 3.06 5.7L

BEGINNING TIME: 2:40 p.m.
 WIND VELOCITY: 8 mph

TEMPERATURE: 65.2° F
 WIND DIRECTION: 342°

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec.	6.12	6.02	6.00	6.03	6.04
0 – 80	14.9 sec.	9.91	9.88	9.87	10.01	9.92
0 – 100	24.6 sec.	14.65	14.64	14.62	14.90	14.70

DISTANCE TO REACH 110 MPH: .36 mile

DISTANCE TO REACH 120 MPH: .50 mile

TOP SPEED ATTAINED: 148 mph

*Michigan State Police minimum requirement.

Ford PI Sedan FWD 3.5L

BEGINNING TIME: 9:47 a.m.
 WIND VELOCITY: 2.5 mph

TEMPERATURE: 59.9° F
 WIND DIRECTION: 317°

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec.	8.07	7.95	8.06	7.94	8.00
0 – 80	14.9 sec.	13.19	13.05	13.11	12.97	13.08
0 – 100	24.6 sec.	20.71	20.17	20.28	20.37	20.38

DISTANCE TO REACH 110 MPH: .53 mile

DISTANCE TO REACH 120 MPH: .96 mile

TOP SPEED ATTAINED: 131 mph

Ford PI Sedan AWD 3.7L

BEGINNING TIME: 11:40 a.m.
 WIND VELOCITY: 9.7 mph

TEMPERATURE: 62.7° F
 WIND DIRECTION: 328°

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec.	7.48	7.50	7.55	7.40	7.48
0 – 80	14.9 sec.	11.96	12.10	12.02	12.12	12.05
0 – 100	24.6 sec.	18.28	18.88	18.44	18.97	18.64

DISTANCE TO REACH 110 MPH: .53 mile

DISTANCE TO REACH 120 MPH: .85 mile

TOP SPEED ATTAINED: 132 mph

Ford PI Sedan AWD Ecoboost 3.5L

BEGINNING TIME: 5:27 p.m.
 WIND VELOCITY: 7 mph

TEMPERATURE: 62.6° F
 WIND DIRECTION: 339°

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec.	5.77	5.71	5.73	5.63	5.71
0 – 80	14.9 sec.	9.14	9.07	9.03	8.96	9.05
0 – 100	24.6 sec.	13.77	13.85	13.57	13.68	13.72

DISTANCE TO REACH 110 MPH: .33 mile

DISTANCE TO REACH 120 MPH: .48 mile

TOP SPEED ATTAINED: 149 mph

*Michigan State Police minimum requirement.

Ford PI Utility AWD 3.7L

BEGINNING TIME: 1:39 p.m.
 WIND VELOCITY: 9.2 mph

TEMPERATURE: 65.9° F
 WIND DIRECTION: 320°

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec.	8.12	8.09	7.86	7.99	8.02
0 – 80	14.9 sec.	13.10	13.01	12.64	12.93	12.92
0 – 100	24.6 sec.	21.05	21.30	20.29	21.36	21.00

DISTANCE TO REACH 110 MPH: .64 mile
 DISTANCE TO REACH 120 MPH: 1.12 mile

TOP SPEED ATTAINED: 131 mph

2014.5 Ford PI Sedan AWD Ecoboost 3.5L

BEGINNING TIME: 4:28 p.m.
 WIND VELOCITY: 9.1 mph

TEMPERATURE: 63.9° F
 WIND DIRECTION: 335°

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec.	5.73	5.72	5.59	5.59	5.66
0 – 80	14.9 sec.	8.96	9.03	8.87	8.82	8.92
0 – 100	24.6 sec.	13.52	13.73	13.34	13.41	13.50

DISTANCE TO REACH 110 MPH: .32 mile
 DISTANCE TO REACH 120 MPH: .46 mile

TOP SPEED ATTAINED: 132 mph

2014.5 Ford PI Utility AWD Ecoboost 3.5L

BEGINNING TIME: 3:14 p.m.
 WIND VELOCITY: 9.7 mph

TEMPERATURE: 66.2° F
 WIND DIRECTION: 334°

SPEEDS	TIME REQUIREMENTS*	RUN#1	RUN#2	RUN#3	RUN#4	AVERAGE
0 – 60	9.0 sec.	6.24	6.42	6.22	6.23	6.28
0 – 80	14.9 sec.	10.01	10.31	9.96	10.06	10.09
0 – 100	24.6 sec.	15.33	15.90	15.22	15.60	15.51

DISTANCE TO REACH 110 MPH: .39 mile
 DISTANCE TO REACH 120 MPH: .59 mile

TOP SPEED ATTAINED: 131 mph

*Michigan State Police minimum requirement.

SUMMARY OF ACCELERATION AND TOP SPEED

CHEVROLET VEHICLES

	Chevrolet Caprice 3.6L	Chevrolet Caprice 6.0L	Chevrolet Impala 3.6L	Chevrolet Tahoe 5.3L
ACCELERATION				
0 – 20 mph (seconds)	1.78	1.57	1.98	2.00
0 – 30 mph (seconds)	2.86	2.45	3.15	3.18
0 – 40 mph (seconds)	3.99	3.51	4.33	4.59
0 – 50 mph (seconds)	5.75	4.72	5.89	6.33
0 – 60 mph (seconds)	7.45	6.01	7.67	8.22
0 – 70 mph (seconds)	9.26	7.76	9.61	10.86
0 – 80 mph (seconds)	12.01	9.70	12.54	13.93
0 – 90 mph (seconds)	15.07	11.80	15.78	17.38
0 – 100 mph (seconds)	18.31	14.35	19.40	21.95
TOP SPEED (mph)	148	155	149	139
DISTANCE TO REACH				
110 mph (miles)	.44	.35	.48	.61
120 mph (miles)	.69	.48	.74	.89
QUARTER MILE				
Time (seconds)	15.71	14.52	15.98	16.47
Speed (mph)	92.17	100.68	90.70	87.68

SUMMARY OF ACCELERATION AND TOP SPEED

DODGE VEHICLES

	2014.5 Dodge Charger 2.65 3.6L	Dodge Charger 2.65 5.7L	Dodge Charger 3.07 3.6L	2014.5 Dodge Charger 2.65 5.7L	2014.5 Dodge Charger AWD 3.06 5.7L
ACCELERATION					
0 – 20 mph (seconds)	1.93	1.58	1.85	1.57	1.54
0 – 30 mph (seconds)	3.38	2.52	3.11	2.53	2.42
0 – 40 mph (seconds)	4.81	3.48	4.36	3.45	3.39
0 – 50 mph (seconds)	6.26	4.69	5.88	4.66	4.71
0 – 60 mph (seconds)	8.32	6.13	7.85	6.12	6.04
0 – 70 mph (seconds)	10.72	7.60	9.92	7.61	7.74
0 – 80 mph (seconds)	13.30	9.42	12.41	9.39	9.92
0 – 90 mph (seconds)	16.10	11.96	16.06	11.98	12.20
0 – 100 mph (seconds)	21.29	14.56	19.95	14.57	14.70
TOP SPEED (mph)	139	152	141	150	148
DISTANCE TO REACH					
110 mph (miles)	.57	.34	.49	.34	.36
120 mph (miles)	.79	.45	.67	.44	.50
QUARTER MILE					
Time (seconds)	16.38	14.53	16.00	14.53	14.60
Speed (mph)	90.31	99.85	89.91	99.88	99.58

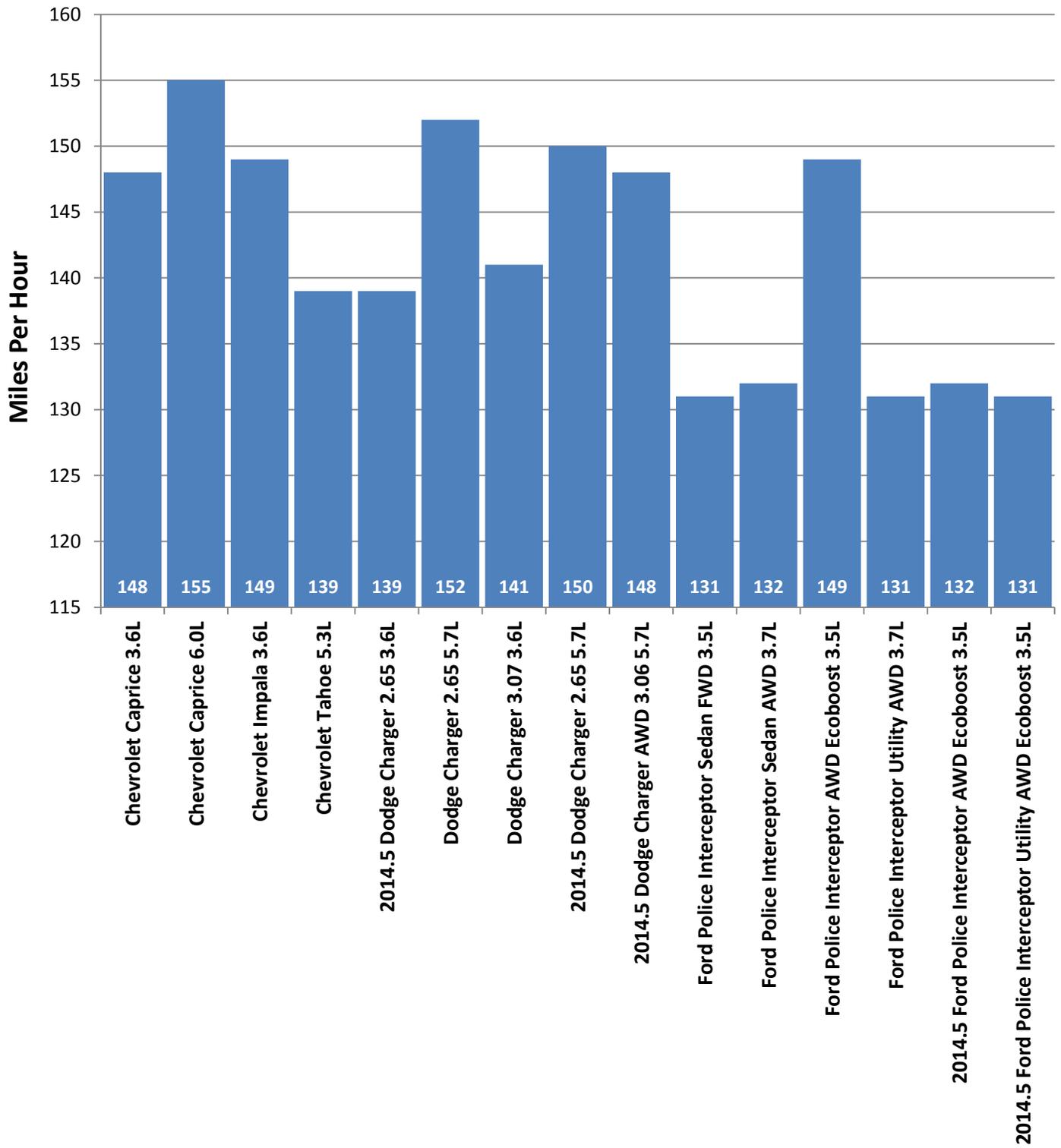
SUMMARY OF ACCELERATION AND TOP SPEED

FORD VEHICLES

	Ford PI Sedan FWD 3.5L	Ford PI Sedan AWD 3.7L	Ford PI Sedan Ecoboost AWD 3.5L	Ford PI Utility AWD 3.7L	2014.5 Ford PI Sedan Ecoboost AWD 3.5	2014.5 Ford PI Utility Ecoboost AWD 3.5L
ACCELERATION						
0 – 20 mph (seconds)	2.03	1.81	1.49	1.84	1.49	1.61
0 – 30 mph (seconds)	3.14	2.81	2.23	2.91	2.23	2.43
0 – 40 mph (seconds)	4.48	4.14	3.16	4.28	3.13	3.42
0 – 50 mph (seconds)	6.02	5.55	4.22	5.86	4.17	4.60
0 – 60 mph (seconds)	8.01	7.48	5.71	8.02	5.66	6.28
0 – 70 mph (seconds)	10.48	9.63	7.33	10.23	7.23	8.05
0 – 80 mph (seconds)	13.08	12.05	9.05	12.92	8.92	10.09
0 – 90 mph (seconds)	16.02	14.92	11.29	16.29	11.10	12.64
0 – 100 mph (seconds)	20.38	18.64	13.72	21.00	13.50	15.51
TOP SPEED (mph)	131	132	149	131	132	131
DISTANCE TO REACH						
110 mph (miles)	.53	.53	.33	.64	.32	.39
120 mph (miles)	.96	.85	.48	1.12	.46	.59
QUARTER MILE						
Time (seconds)	16.22	15.72	14.20	16.10	14.13	14.74
Speed (mph)	90.64	92.28	101.57	89.25	102.27	97.50

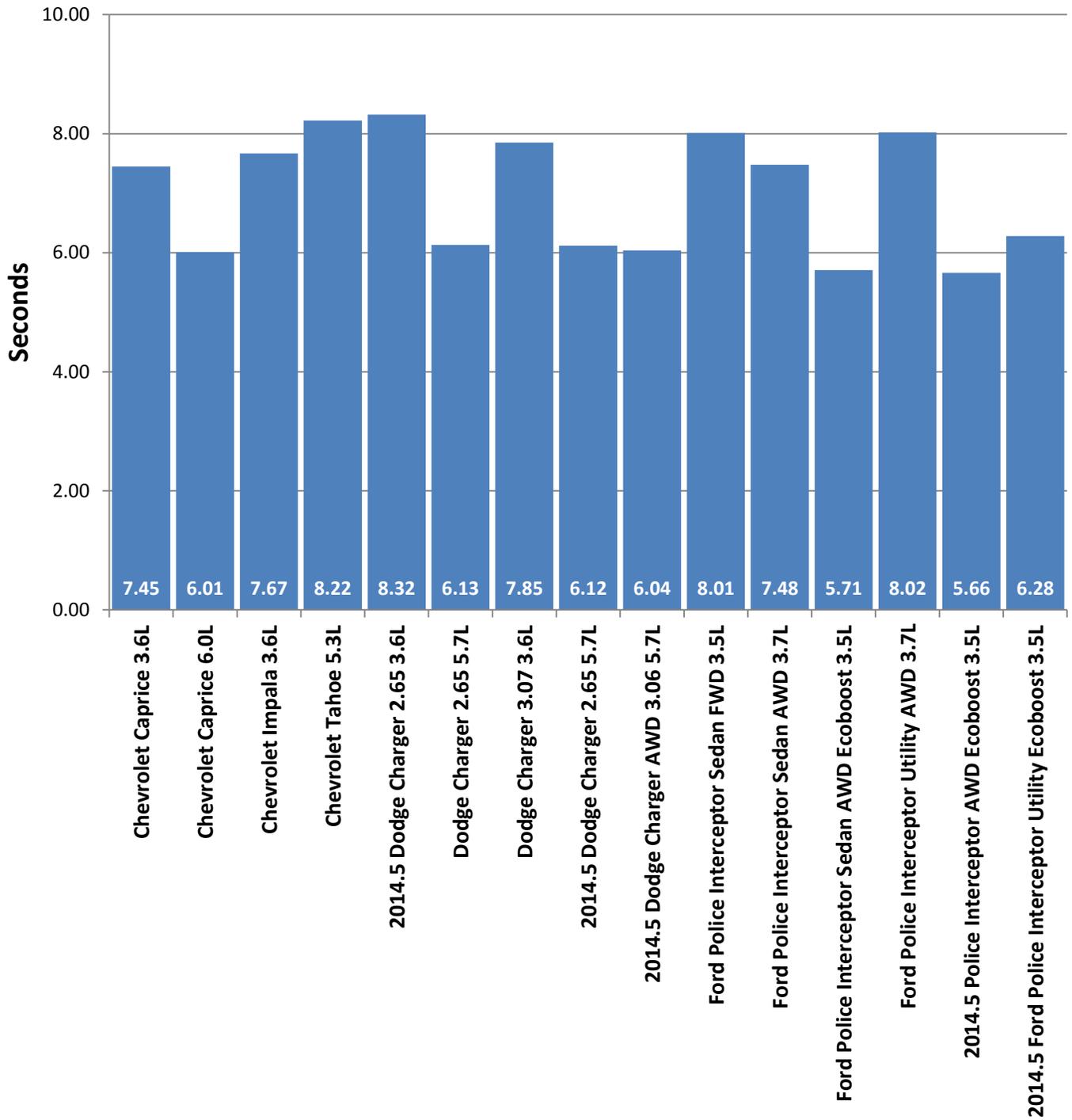
2014 Top Speed Comparison

Top Speed Attained



2014 Acceleration Comparison

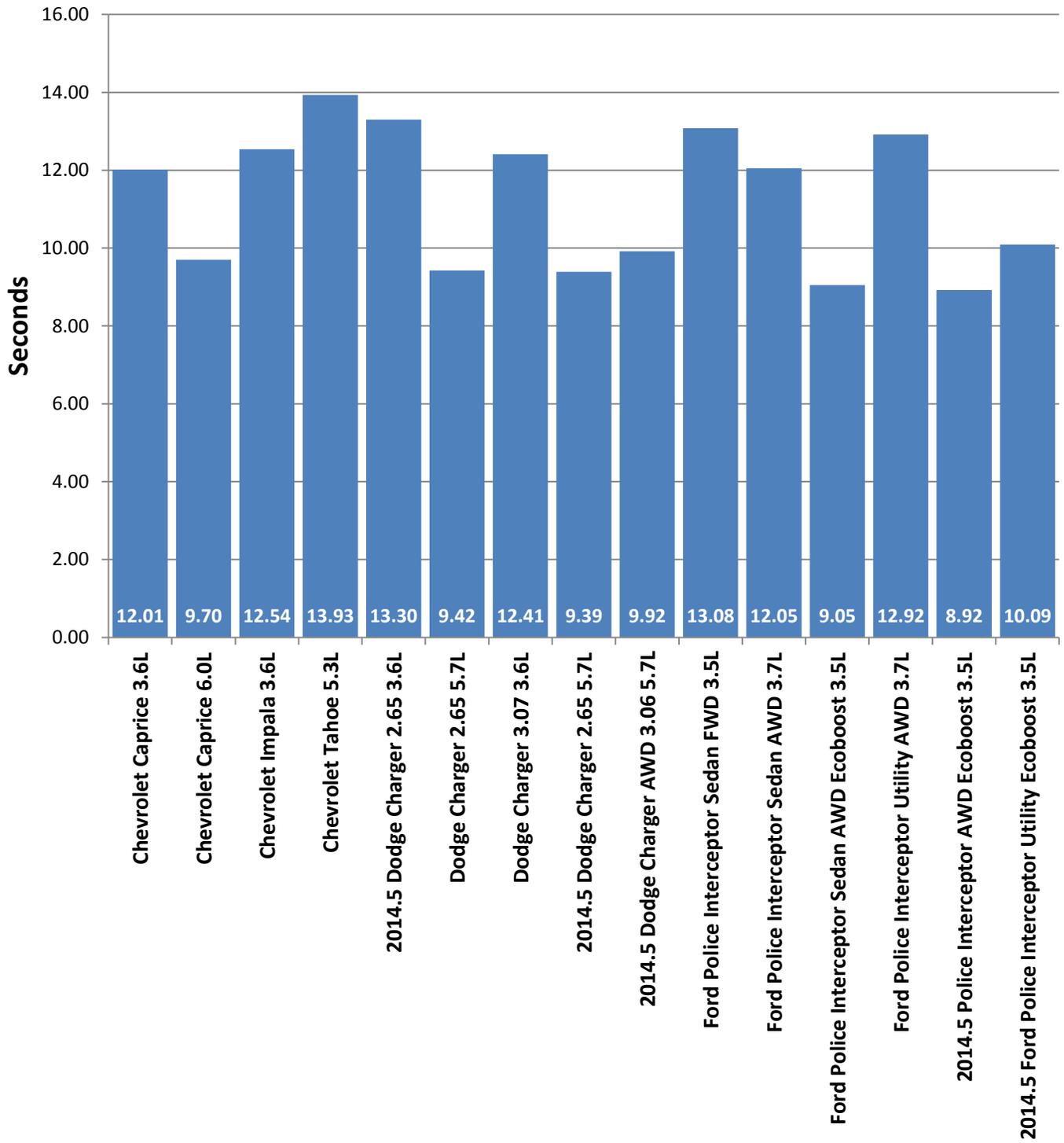
Acceleration Times 0-60 mph



2014 Acceleration Comparison

Acceleration Times

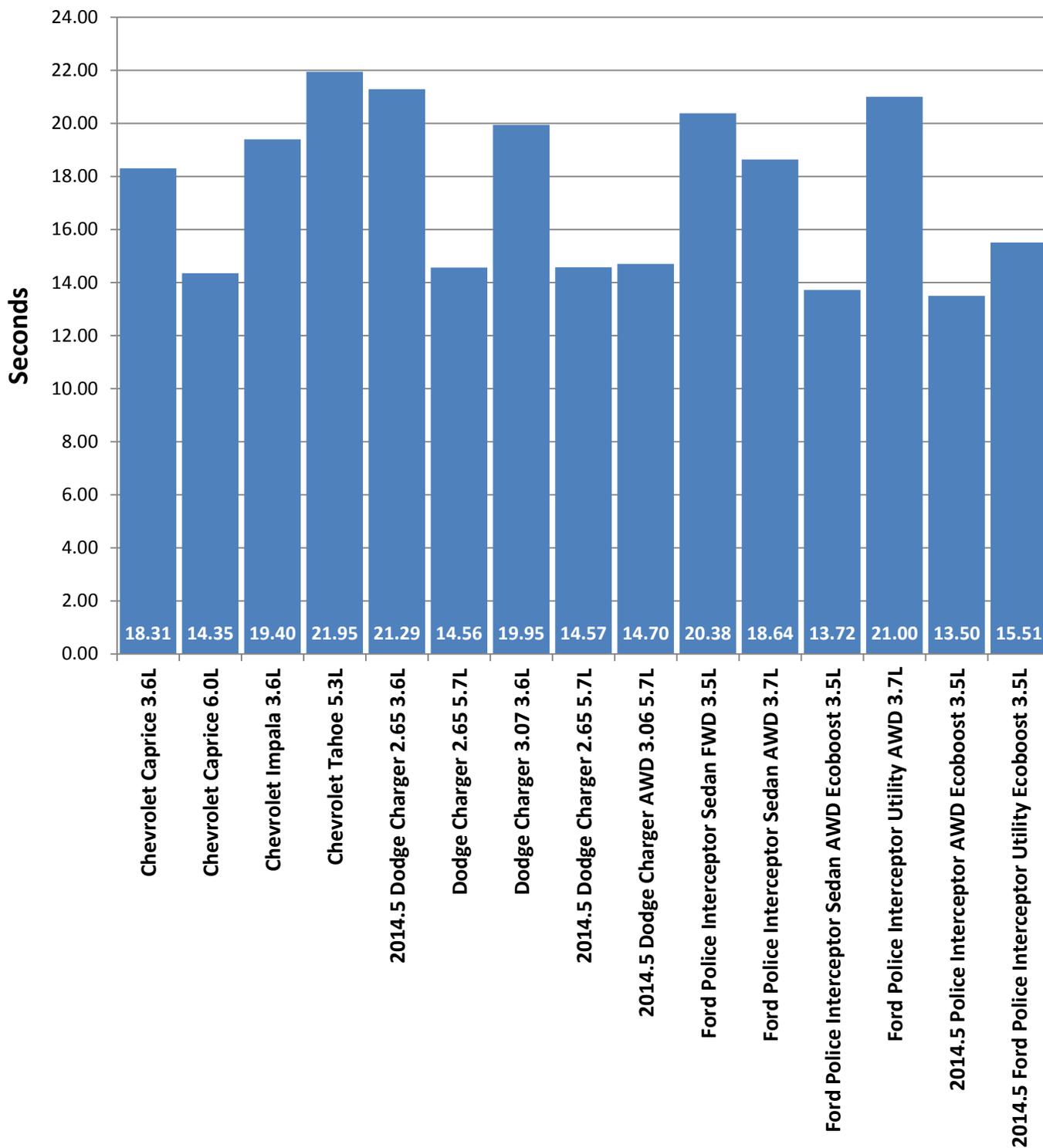
0-80 mph



2014 Acceleration Comparison

Acceleration Times

0-100 mph



BRAKE TESTING

BRAKE TEST OBJECTIVE

To determine the deceleration rate attained by each test vehicle on twenty 60 – 0 mph full ABS stops. Each vehicle is scored on the average deceleration rate it achieves.

BRAKE TEST METHODOLOGY

Each vehicle is taken to the 1.6 mile east/west straightaway and started from the beginning of the straightaway with “cold” brakes. The vehicle then begins its sequence of stops heading in a westerly direction. Within the 1.6 miles, the vehicle is stopped 5 times at pre-determined points on the roadway (.3 miles apart). The vehicle is then turned around and stops an additional 5 times again at pre-determined points on the roadway in an easterly direction. After the 10 stops, the vehicle drives the length of the straightaway (down and back) at 45 mph. This is done in an effort to cool the brakes before the second sequence. After the down and back lap, the 10 stops are repeated.

The data resulting from the twenty stops is used to calculate the average deceleration rate which is the vehicle’s score for the test.

DECELERATION RATE FORMULA

$$\text{Deceleration Rate (DR)} = \frac{\text{Initial Velocity}^*(\text{IV}) \text{ squared}}{2 \text{ times Stopping Distance (SD)}} = \frac{(\text{IV})^2}{2 (\text{SD})}$$

EXAMPLE:

$$\begin{aligned} \text{Initial Velocity} &= 89.175 \text{ ft/s (60.8 mph x 1.4667*)} \\ \text{Stopping Distance} &= 171.4 \text{ ft.} \end{aligned}$$

$$\text{DR} = \frac{(\text{IV})^2}{2(\text{SD})} = \frac{(89.175)^2}{2(171.4)} = \frac{7952.24}{342.8} = 23.198 \text{ ft/s}^2$$

Once a vehicle’s average deceleration rate has been determined, it is possible to calculate the stopping distance from any given speed by utilizing the following formula:

Select a speed; translate that speed into feet per second; square the feet per second figure by multiplying it by itself; divide the resultant figure by 2; divide the remaining figure by the average deceleration rate of the vehicle in question.

EXAMPLE:

$$60 \text{ mph} = 88.002 \text{ ft/s} \times 88.002 = 7744.352 / 2 = 3872.176 / 23.198 \text{ ft/s}^2 = 166.9 \text{ ft.}$$

*Initial velocity must be expressed in terms of feet per second, with 1 mile per hour being equal to 1.4667 feet per second.

BRAKE TESTING

Chevrolet Caprice 3.6L

TEST LOCATION: Chrysler Proving Grounds	DATE: September 21, 2013
BEGINNING TIME: 10:18 a.m.	TEMPERATURE: 59.8° F

Phase I

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	60.01 mph	126.52 feet	30.62 ft/s ²
2	59.65 mph	122.29 feet	31.30 ft/s ²
3	59.60 mph	126.82 feet	30.12 ft/s ²
4	59.69 mph	129.44 feet	29.60 ft/s ²
5	60.90 mph	133.87 feet	29.80 ft/s ²
6	60.16 mph	127.33 feet	30.58 ft/s ²
7	60.01 mph	127.32 feet	30.42 ft/s ²
8	60.09 mph	125.17 feet	31.02 ft/s ²
9	60.34 mph	130.98 feet	29.89 ft/s ²
10	60.42 mph	126.81 feet	30.96 ft/s ²
AVERAGE DECELERATION RATE:			30.43 ft/s²

(One cool down lap at 45 mph)

Phase II

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	59.88 mph	129.82 feet	29.71 ft/s ²
2	59.77 mph	126.82 feet	30.30 ft/s ²
3	60.27 mph	127.71 feet	30.59 ft/s ²
4	60.42 mph	124.00 feet	31.67 ft/s ²
5	60.40 mph	126.71 feet	30.97 ft/s ²
6	60.06 mph	126.76 feet	30.61 ft/s ²
7	60.26 mph	124.95 feet	31.25 ft/s ²
8	59.91 mph	129.58 feet	29.79 ft/s ²
9	59.69 mph	125.73 feet	30.48 ft/s ²
10	60.45 mph	127.32 feet	30.87 ft/s ²
AVERAGE DECELERATION RATE:			30.62 ft/s²

Phase III

OVERALL AVERAGE DECELERATION RATE:	30.53 ft/s²
---	-------------------------------

PROJECTED STOPPING DISTANCE FROM 60.0 mph:	126.8 feet
---	-------------------

Evidence of Severe Fading?	No
Vehicle Stopped in Straight Line?	Yes
Vehicle Stopped Within Correct Lane?	Yes

****All Vehicles Tested are Equipped with Anti-Lock Brakes****

BRAKE TESTING

Chevrolet Caprice 6.0L

TEST LOCATION: Chrysler Proving Grounds	DATE: September 21, 2013
BEGINNING TIME: 5:04 p.m.	TEMPERATURE: 63.6° F

Phase I

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	59.71 mph	124.93 feet	30.70 ft/s ²
2	60.07 mph	125.84 feet	30.84 ft/s ²
3	60.68 mph	131.14 feet	30.20 ft/s ²
4	59.78 mph	127.02 feet	30.26 ft/s ²
5	60.30 mph	127.49 feet	30.68 ft/s ²
6	59.93 mph	130.46 feet	29.61 ft/s ²
7	60.30 mph	129.49 feet	30.20 ft/s ²
8	60.22 mph	128.73 feet	30.30 ft/s ²
9	60.16 mph	130.24 feet	29.89 ft/s ²
10	60.31 mph	129.17 feet	30.28 ft/s ²
AVERAGE DECELERATION RATE:			30.30 ft/s²

(One cool down lap at 45 mph)

Phase II

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	59.71 mph	125.71 feet	30.50 ft/s ²
2	59.29 mph	123.27 feet	30.68 ft/s ²
3	60.11 mph	128.67 feet	30.21 ft/s ²
4	59.67 mph	126.29 feet	30.33 ft/s ²
5	60.31 mph	128.07 feet	30.55 ft/s ²
6	60.65 mph	130.46 feet	30.33 ft/s ²
7	60.44 mph	128.06 feet	30.68 ft/s ²
8	60.33 mph	129.41 feet	30.25 ft/s ²
9	59.85 mph	127.99 feet	30.10 ft/s ²
10	60.08 mph	128.21 feet	30.28 ft/s ²
AVERAGE DECELERATION RATE:			30.39 ft/s²

Phase III

OVERALL AVERAGE DECELERATION RATE:	30.35 ft/s²
---	-------------------------------

PROJECTED STOPPING DISTANCE FROM 60.0 mph:	127.6 feet
---	-------------------

Evidence of Severe Fading?	No
Vehicle Stopped in Straight Line?	Yes
Vehicle Stopped Within Correct Lane?	Yes

****All Vehicles Tested are Equipped with Anti-Lock Brakes****

BRAKE TESTING

Chevrolet Impala 3.6L

TEST LOCATION: Chrysler Proving Grounds	DATE: September 21, 2013
BEGINNING TIME: 2:33 p.m.	TEMPERATURE: 67.1° F

Phase I

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	59.55 mph	133.47 feet	28.58 ft/s ²
2	59.80 mph	132.00 feet	29.14 ft/s ²
3	60.20 mph	135.23 feet	28.82 ft/s ²
4	60.05 mph	137.24 feet	28.26 ft/s ²
5	59.94 mph	131.95 feet	29.28 ft/s ²
6	60.01 mph	134.57 feet	28.79 ft/s ²
7	60.21 mph	134.76 feet	28.93 ft/s ²
8	59.91 mph	134.46 feet	28.71 ft/s ²
9	59.70 mph	133.70 feet	28.67 ft/s ²
10	59.63 mph	131.78 feet	29.02 ft/s ²
AVERAGE DECELERATION RATE:			28.82 ft/s²

(One cool down lap at 45 mph)

Phase II

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	60.15 mph	132.73 feet	29.32 ft/s ²
2	60.16 mph	135.86 feet	28.65 ft/s ²
3	59.61 mph	133.61 feet	28.61 ft/s ²
4	60.33 mph	137.34 feet	28.50 ft/s ²
5	59.49 mph	132.74 feet	28.68 ft/s ²
6	59.75 mph	133.54 feet	28.76 ft/s ²
7	59.80 mph	135.21 feet	28.45 ft/s ²
8	59.72 mph	132.05 feet	29.05 ft/s ²
9	60.13 mph	133.71 feet	29.08 ft/s ²
10	60.00 mph	137.09 feet	28.24 ft/s ²
AVERAGE DECELERATION RATE:			28.73 ft/s²

Phase III

OVERALL AVERAGE DECELERATION RATE:	28.78 ft/s²
---	-------------------------------

PROJECTED STOPPING DISTANCE FROM 60.0 mph:	134.5 feet
---	-------------------

Evidence of Severe Fading?	No
Vehicle Stopped in Straight Line?	Yes
Vehicle Stopped Within Correct Lane?	Yes

****All Vehicles Tested are Equipped with Anti-Lock Brakes****

BRAKE TESTING

Chevrolet Tahoe 5.3L

TEST LOCATION: Chrysler Proving Grounds	DATE: September 21, 2013
BEGINNING TIME: 3:52 p.m.	TEMPERATURE: 65.9° F

Phase I

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	59.66 mph	133.21 feet	28.73 ft/s ²
2	60.13 mph	133.53 feet	29.13 ft/s ²
3	59.63 mph	132.06 feet	28.96 ft/s ²
4	59.84 mph	131.33 feet	29.33 ft/s ²
5	60.42 mph	135.82 feet	28.91 ft/s ²
6	60.10 mph	129.71 feet	29.95 ft/s ²
7	60.20 mph	133.28 feet	29.25 ft/s ²
8	60.28 mph	132.38 feet	29.52 ft/s ²
9	60.31 mph	131.77 feet	29.69 ft/s ²
10	59.75 mph	131.97 feet	29.09 ft/s ²
AVERAGE DECELERATION RATE:			29.26 ft/s²

(One cool down lap at 45 mph)

Phase II

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	60.05 mph	134.95 feet	28.74 ft/s ²
2	59.92 mph	135.47 feet	28.50 ft/s ²
3	60.00 mph	133.00 feet	29.11 ft/s ²
4	59.95 mph	135.02 feet	28.63 ft/s ²
5	59.75 mph	131.60 feet	29.18 ft/s ²
6	59.52 mph	132.65 feet	28.72 ft/s ²
7	60.62 mph	135.40 feet	29.19 ft/s ²
8	60.31 mph	134.91 feet	28.99 ft/s ²
9	60.34 mph	133.70 feet	29.29 ft/s ²
10	60.25 mph	137.27 feet	28.45 ft/s ²
AVERAGE DECELERATION RATE:			28.88 ft/s²

Phase III

OVERALL AVERAGE DECELERATION RATE:	29.07 ft/s²
---	-------------------------------

PROJECTED STOPPING DISTANCE FROM 60.0 mph:	133.2 feet
---	-------------------

Evidence of Severe Fading?	No
Vehicle Stopped in Straight Line?	Yes
Vehicle Stopped Within Correct Lane?	Yes

****All Vehicles Tested are Equipped with Anti-Lock Brakes****

BRAKE TESTING

2014.5 Dodge Charger 2.65 3.6L

TEST LOCATION: Chrysler Proving Grounds	DATE: September 21, 2013
BEGINNING TIME: 3:00 p.m.	TEMPERATURE: 64.2° F

Phase I

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	59.49 mph	128.09 feet	29.72 ft/s ²
2	60.24 mph	126.71 feet	30.80 ft/s ²
3	60.65 mph	136.71 feet	28.94 ft/s ²
4	60.07 mph	127.53 feet	30.44 ft/s ²
5	60.25 mph	129.96 feet	30.04 ft/s ²
6	59.98 mph	127.68 feet	30.30 ft/s ²
7	59.90 mph	127.52 feet	30.26 ft/s ²
8	60.33 mph	129.59 feet	30.21 ft/s ²
9	60.22 mph	127.93 feet	30.48 ft/s ²
10	60.81 mph	133.30 feet	29.83 ft/s ²
AVERAGE DECELERATION RATE:			30.10 ft/s²

(One cool down lap at 45 mph)

Phase II

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	60.03 mph	127.96 feet	30.29 ft/s ²
2	60.50 mph	130.41 feet	30.19 ft/s ²
3	60.20 mph	130.19 feet	29.94 ft/s ²
4	60.38 mph	133.10 feet	29.46 ft/s ²
5	60.16 mph	129.80 feet	29.99 ft/s ²
6	60.19 mph	131.70 feet	29.59 ft/s ²
7	60.56 mph	132.05 feet	29.87 ft/s ²
8	60.24 mph	126.76 feet	30.79 ft/s ²
9	60.22 mph	131.15 feet	29.74 ft/s ²
10	59.60 mph	127.50 feet	29.96 ft/s ²
AVERAGE DECELERATION RATE:			29.98 ft/s²

Phase III

OVERALL AVERAGE DECELERATION RATE:	30.04 ft/s²
---	-------------------------------

PROJECTED STOPPING DISTANCE FROM 60.0 mph:	128.9 feet
---	-------------------

Evidence of Severe Fading?	No
Vehicle Stopped in Straight Line?	Yes
Vehicle Stopped Within Correct Lane?	Yes

****All Vehicles Tested are Equipped with Anti-Lock Brakes****

BRAKE TESTING

Dodge Charger 2.65 5.7L

TEST LOCATION: Chrysler Proving Grounds	DATE: September 21, 2013
BEGINNING TIME: 10:48 a.m.	TEMPERATURE: 60.7° F

Phase I

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	59.45 mph	127.78 feet	29.74 ft/s ²
2	59.87 mph	126.14 feet	30.56 ft/s ²
3	59.71 mph	127.14 feet	30.16 ft/s ²
4	60.09 mph	127.10 feet	30.55 ft/s ²
5	60.38 mph	131.12 feet	29.91 ft/s ²
6	60.32 mph	128.38 feet	30.49 ft/s ²
7	60.37 mph	127.52 feet	30.73 ft/s ²
8	60.36 mph	126.01 feet	31.10 ft/s ²
9	60.34 mph	125.54 feet	31.19 ft/s ²
10	60.17 mph	129.34 feet	30.10 ft/s ²
AVERAGE DECELERATION RATE:			30.45 ft/s²

(One cool down lap at 45 mph)

Phase II

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	59.70 mph	128.78 feet	29.77 ft/s ²
2	60.30 mph	128.11 feet	30.53 ft/s ²
3	60.38 mph	131.02 feet	29.93 ft/s ²
4	61.32 mph	130.35 feet	31.02 ft/s ²
5	60.20 mph	130.05 feet	29.97 ft/s ²
6	60.11 mph	125.34 feet	31.01 ft/s ²
7	59.57 mph	126.95 feet	30.06 ft/s ²
8	59.73 mph	124.06 feet	30.93 ft/s ²
9	60.53 mph	131.56 feet	29.95 ft/s ²
10	60.69 mph	128.18 feet	30.90 ft/s ²
AVERAGE DECELERATION RATE:			30.41 ft/s²

Phase III

OVERALL AVERAGE DECELERATION RATE:	30.43 ft/s²
---	-------------------------------

PROJECTED STOPPING DISTANCE FROM 60.0 mph:	127.2 feet
---	-------------------

Evidence of Severe Fading?	No
Vehicle Stopped in Straight Line?	Yes
Vehicle Stopped Within Correct Lane?	Yes

****All Vehicles Tested are Equipped with Anti-Lock Brakes****

BRAKE TESTING

Dodge Charger 3.07 3.6L

TEST LOCATION: Chrysler Proving Grounds	DATE: September 21, 2013
BEGINNING TIME: 4:15 p.m.	TEMPERATURE: 64.6° F

Phase I

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	59.81 mph	128.19 feet	30.01 ft/s ²
2	60.34 mph	126.85 feet	30.87 ft/s ²
3	60.00 mph	129.57 feet	29.88 ft/s ²
4	59.83 mph	128.98 feet	29.85 ft/s ²
5	59.84 mph	125.51 feet	30.69 ft/s ²
6	60.45 mph	129.37 feet	30.38 ft/s ²
7	59.99 mph	126.59 feet	30.57 ft/s ²
8	60.21 mph	124.67 feet	31.28 ft/s ²
9	60.18 mph	129.48 feet	30.08 ft/s ²
10	59.59 mph	123.12 feet	31.02 ft/s ²
AVERAGE DECELERATION RATE:			30.46 ft/s²

(One cool down lap at 45 mph)

Phase II

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	59.42 mph	127.24 feet	29.85 ft/s ²
2	59.84 mph	125.49 feet	30.69 ft/s ²
3	59.99 mph	130.23 feet	29.72 ft/s ²
4	59.90 mph	128.37 feet	30.06 ft/s ²
5	60.40 mph	132.05 feet	29.72 ft/s ²
6	60.12 mph	126.13 feet	30.82 ft/s ²
7	60.36 mph	128.86 feet	30.41 ft/s ²
8	60.48 mph	127.34 feet	30.90 ft/s ²
9	60.42 mph	128.25 feet	30.61 ft/s ²
10	59.86 mph	128.63 feet	29.96 ft/s ²
AVERAGE DECELERATION RATE:			30.27 ft/s²

Phase III

OVERALL AVERAGE DECELERATION RATE:	30.37 ft/s²
---	-------------------------------

PROJECTED STOPPING DISTANCE FROM 60.0 mph:	127.5 feet
---	-------------------

Evidence of Severe Fading?	No
Vehicle Stopped in Straight Line?	Yes
Vehicle Stopped Within Correct Lane?	Yes

****All Vehicles Tested are Equipped with Anti-Lock Brakes****

BRAKE TESTING

2014.5 Dodge Charger 2.65 5.7L

TEST LOCATION: Chrysler Proving Grounds	DATE: September 21, 2013
BEGINNING TIME: 1:04 p.m.	TEMPERATURE: 63.1° F

Phase I

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	58.98 mph	118.78 feet	31.50 ft/s ²
2	60.25 mph	124.79 feet	31.29 ft/s ²
3	59.85 mph	125.40 feet	30.73 ft/s ²
4	59.07 mph	122.63 feet	30.60 ft/s ²
5	60.59 mph	127.04 feet	31.08 ft/s ²
6	59.68 mph	127.01 feet	30.16 ft/s ²
7	59.60 mph	124.05 feet	30.80 ft/s ²
8	59.83 mph	125.04 feet	30.79 ft/s ²
9	60.04 mph	125.47 feet	30.90 ft/s ²
10	60.35 mph	129.69 feet	30.21 ft/s ²
AVERAGE DECELERATION RATE:			30.81 ft/s²

(One cool down lap at 45 mph)

Phase II

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	59.93 mph	126.70 feet	30.49 ft/s ²
2	60.76 mph	128.80 feet	30.83 ft/s ²
3	60.75 mph	134.82 feet	29.44 ft/s ²
4	60.55 mph	131.51 feet	29.98 ft/s ²
5	60.00 mph	127.23 feet	30.43 ft/s ²
6	60.07 mph	127.40 feet	30.47 ft/s ²
7	59.72 mph	123.88 feet	30.96 ft/s ²
8	60.57 mph	128.68 feet	30.66 ft/s ²
9	59.82 mph	127.02 feet	30.30 ft/s ²
10	60.29 mph	127.45 feet	30.67 ft/s ²
AVERAGE DECELERATION RATE:			30.42 ft/s²

Phase III

OVERALL AVERAGE DECELERATION RATE:	30.62 ft/s²
---	-------------------------------

PROJECTED STOPPING DISTANCE FROM 60.0 mph:	126.5 feet
---	-------------------

Evidence of Severe Fading?	No
Vehicle Stopped in Straight Line?	Yes
Vehicle Stopped Within Correct Lane?	Yes

****All Vehicles Tested are Equipped with Anti-Lock Brakes****

BRAKE TESTING

2014.5 Dodge Charger AWD 3.06 5.7L

TEST LOCATION: Chrysler Proving Grounds	DATE: September 21, 2013
BEGINNING TIME: 9:30 a.m.	TEMPERATURE: 58.1° F

Phase I

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	59.47 mph	127.50 feet	29.83 ft/s ²
2	59.43 mph	125.06 feet	30.37 ft/s ²
3	59.77 mph	129.08 feet	29.76 ft/s ²
4	59.84 mph	129.52 feet	29.73 ft/s ²
5	59.28 mph	132.47 feet	28.53 ft/s ²
6	60.23 mph	129.88 feet	30.05 ft/s ²
7	60.46 mph	126.92 feet	30.98 ft/s ²
8	60.06 mph	124.89 feet	31.07 ft/s ²
9	60.58 mph	126.08 feet	31.31 ft/s ²
10	59.99 mph	132.39 feet	29.24 ft/s ²
AVERAGE DECELERATION RATE:			30.09 ft/s²

(One cool down lap at 45 mph)

Phase II

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	59.84 mph	126.80 feet	30.37 ft/s ²
2	60.21 mph	125.90 feet	30.97 ft/s ²
3	60.22 mph	131.04 feet	29.76 ft/s ²
4	59.77 mph	127.52 feet	30.14 ft/s ²
5	60.15 mph	131.33 feet	29.63 ft/s ²
6	59.12 mph	121.68 feet	30.89 ft/s ²
7	60.27 mph	127.50 feet	30.64 ft/s ²
8	59.70 mph	125.96 feet	30.43 ft/s ²
9	59.76 mph	123.53 feet	31.09 ft/s ²
10	60.37 mph	130.05 feet	30.14 ft/s ²
AVERAGE DECELERATION RATE:			30.41 ft/s²

Phase III

OVERALL AVERAGE DECELERATION RATE:	30.25 ft/s²
---	-------------------------------

PROJECTED STOPPING DISTANCE FROM 60.0 mph:	128.0 feet
---	-------------------

Evidence of Severe Fading?	No
Vehicle Stopped in Straight Line?	Yes
Vehicle Stopped Within Correct Lane?	Yes

****All Vehicles Tested are Equipped with Anti-Lock Brakes****

BRAKE TESTING

Ford Police Interceptor Sedan FWD 3.5L

TEST LOCATION: Chrysler Proving Grounds	DATE: September 21, 2013
BEGINNING TIME: 2:09 p.m.	TEMPERATURE: 66.6° F

Phase I

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	59.91 mph	134.23 feet	28.76 ft/s ²
2	60.78 mph	138.82 feet	28.62 ft/s ²
3	59.89 mph	138.00 feet	27.95 ft/s ²
4	60.30 mph	136.01 feet	28.75 ft/s ²
5	60.12 mph	138.44 feet	28.08 ft/s ²
6	59.60 mph	130.45 feet	29.29 ft/s ²
7	60.08 mph	135.60 feet	28.63 ft/s ²
8	60.87 mph	138.04 feet	28.87 ft/s ²
9	60.11 mph	135.44 feet	28.70 ft/s ²
10	60.20 mph	130.87 feet	29.79 ft/s ²
AVERAGE DECELERATION RATE:			28.74 ft/s²

(One cool down lap at 45 mph)

Phase II

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	60.06 mph	133.75 feet	29.01 ft/s ²
2	60.50 mph	134.38 feet	29.29 ft/s ²
3	60.20 mph	135.52 feet	28.76 ft/s ²
4	59.42 mph	133.94 feet	28.35 ft/s ²
5	60.28 mph	134.99 feet	28.95 ft/s ²
6	59.74 mph	132.25 feet	29.03 ft/s ²
7	60.48 mph	134.89 feet	29.17 ft/s ²
8	60.18 mph	132.95 feet	29.30 ft/s ²
9	60.08 mph	128.83 feet	30.14 ft/s ²
10	60.13 mph	137.54 feet	28.27 ft/s ²
AVERAGE DECELERATION RATE:			29.03 ft/s²

Phase III

OVERALL AVERAGE DECELERATION RATE:	28.89 ft/s²
---	-------------------------------

PROJECTED STOPPING DISTANCE FROM 60.0 mph:	134.0 feet
---	-------------------

Evidence of Severe Fading?	No
Vehicle Stopped in Straight Line?	Yes
Vehicle Stopped Within Correct Lane?	Yes

****All Vehicles Tested are Equipped with Anti-Lock Brakes****

BRAKE TESTING

Ford Police Interceptor Sedan AWD 3.7L

TEST LOCATION: Chrysler Proving Grounds	DATE: September 21, 2013
BEGINNING TIME: 3:28 p.m.	TEMPERATURE: 65° F

Phase I

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	60.21 mph	142.40 feet	27.38 ft/s ²
2	60.19 mph	141.44 feet	27.55 ft/s ²
3	60.16 mph	139.51 feet	27.90 ft/s ²
4	59.79 mph	139.41 feet	27.58 ft/s ²
5	60.15 mph	134.86 feet	28.85 ft/s ²
6	59.93 mph	136.37 feet	28.33 ft/s ²
7	61.00 mph	139.62 feet	28.67 ft/s ²
8	60.11 mph	136.06 feet	28.57 ft/s ²
9	59.61 mph	138.25 feet	27.64 ft/s ²
10	60.35 mph	137.32 feet	28.52 ft/s ²
AVERAGE DECELERATION RATE:			28.10 ft/s²

(One cool down lap at 45 mph)

Phase II

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	60.13 mph	134.11 feet	29.00 ft/s ²
2	60.56 mph	137.70 feet	28.65 ft/s ²
3	60.00 mph	138.25 feet	28.01 ft/s ²
4	59.56 mph	137.49 feet	27.75 ft/s ²
5	60.23 mph	135.14 feet	28.87 ft/s ²
6	59.96 mph	134.09 feet	28.84 ft/s ²
7	59.91 mph	134.56 feet	28.69 ft/s ²
8	59.99 mph	134.61 feet	28.75 ft/s ²
9	60.13 mph	132.40 feet	29.37 ft/s ²
10	60.12 mph	140.63 feet	27.64 ft/s ²
AVERAGE DECELERATION RATE:			28.56 ft/s²

Phase III

OVERALL AVERAGE DECELERATION RATE:	28.83 ft/s²
---	-------------------------------

PROJECTED STOPPING DISTANCE FROM 60.0 mph:	136.7 feet
---	-------------------

Evidence of Severe Fading?	No
Vehicle Stopped in Straight Line?	Yes
Vehicle Stopped Within Correct Lane?	Yes

****All Vehicles Tested are Equipped with Anti-Lock Brakes****

BRAKE TESTING

Ford Police Interceptor Sedan AWD Ecoboost 3.5L

TEST LOCATION: Chrysler Proving Grounds	DATE: September 21, 2013
BEGINNING TIME: 1:46 p.m.	TEMPERATURE: 64.2° F

Phase I

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	59.94 mph	137.21 feet	28.16 ft/s ²
2	59.75 mph	133.78 feet	28.70 ft/s ²
3	60.08 mph	136.72 feet	28.40 ft/s ²
4	60.35 mph	142.48 feet	27.50 ft/s ²
5	59.70 mph	138.84 feet	27.61 ft/s ²
6	60.03 mph	133.34 feet	29.07 ft/s ²
7	59.72 mph	136.85 feet	28.03 ft/s ²
8	60.13 mph	130.26 feet	29.85 ft/s ²
9	60.29 mph	136.56 feet	28.63 ft/s ²
10	60.00 mph	137.99 feet	28.06 ft/s ²
AVERAGE DECELERATION RATE:			28.40 ft/s²

(One cool down lap at 45 mph)

Phase II

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	60.35 mph	137.47 feet	28.49 ft/s ²
2	59.78 mph	133.18 feet	28.86 ft/s ²
3	60.28 mph	138.79 feet	28.16 ft/s ²
4	60.56 mph	144.26 feet	27.34 ft/s ²
5	59.98 mph	137.25 feet	28.19 ft/s ²
6	59.91 mph	133.19 feet	28.99 ft/s ²
7	59.80 mph	130.12 feet	29.56 ft/s ²
8	60.36 mph	132.05 feet	29.68 ft/s ²
9	59.55 mph	130.26 feet	29.28 ft/s ²
10	59.73 mph	139.27 feet	27.55 ft/s ²
AVERAGE DECELERATION RATE:			28.61 ft/s²

Phase III

OVERALL AVERAGE DECELERATION RATE:	28.51 ft/s²
---	-------------------------------

PROJECTED STOPPING DISTANCE FROM 60.0 mph:	135.8 feet
---	-------------------

Evidence of Severe Fading?	No
Vehicle Stopped in Straight Line?	Yes
Vehicle Stopped Within Correct Lane?	Yes

****All Vehicles Tested are Equipped with Anti-Lock Brakes****

BRAKE TESTING

Ford Police Interceptor Utility AWD 3.7L

TEST LOCATION: Chrysler Proving Grounds	DATE: September 21, 2013
BEGINNING TIME: 4:38 p.m.	TEMPERATURE: 65.2° F

Phase I

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	60.28 mph	136.69 feet	28.59 ft/s ²
2	60.02 mph	134.58 feet	28.79 ft/s ²
3	59.62 mph	136.99 feet	27.91 ft/s ²
4	60.14 mph	139.53 feet	27.88 ft/s ²
5	60.07 mph	133.53 feet	29.06 ft/s ²
6	59.75 mph	130.81 feet	29.36 ft/s ²
7	60.11 mph	134.31 feet	28.93 ft/s ²
8	60.42 mph	131.75 feet	29.80 ft/s ²
9	60.11 mph	140.32 feet	27.70 ft/s ²
10	59.71 mph	129.99 feet	29.50 ft/s ²
AVERAGE DECELERATION RATE:			28.75 ft/s²

(One cool down lap at 45 mph)

Phase II

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	59.74 mph	131.12 feet	29.27 ft/s ²
2	60.33 mph	132.54 feet	29.53 ft/s ²
3	59.96 mph	134.86 feet	28.68 ft/s ²
4	59.90 mph	135.68 feet	28.44 ft/s ²
5	60.38 mph	137.97 feet	28.42 ft/s ²
6	60.41 mph	135.96 feet	28.87 ft/s ²
7	60.25 mph	134.67 feet	28.99 ft/s ²
8	60.25 mph	129.95 feet	30.05 ft/s ²
9	59.91 mph	130.78 feet	29.52 ft/s ²
10	59.89 mph	138.96 feet	27.76 ft/s ²
AVERAGE DECELERATION RATE:			28.95 ft/s²

Phase III

OVERALL AVERAGE DECELERATION RATE:	28.85 ft/s²
---	-------------------------------

PROJECTED STOPPING DISTANCE FROM 60.0 mph:	134.2 feet
---	-------------------

Evidence of Severe Fading?	No
Vehicle Stopped in Straight Line?	Yes
Vehicle Stopped Within Correct Lane?	Yes

****All Vehicles Tested are Equipped with Anti-Lock Brakes****

BRAKE TESTING

2014.5 Ford Police Interceptor AWD 3.5L

TEST LOCATION: Chrysler Proving Grounds	DATE: September 21, 2013
BEGINNING TIME: 11:30 a.m.	TEMPERATURE: 62.9° F

Phase I

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	59.71 mph	132.93 feet	28.85 ft/s ²
2	60.31 mph	135.72 feet	28.82 ft/s ²
3	59.40 mph	135.86 feet	27.93 ft/s ²
4	60.61 mph	136.23 feet	29.01 ft/s ²
5	59.86 mph	130.73 feet	29.48 ft/s ²
6	59.87 mph	135.87 feet	28.37 ft/s ²
7	61.17 mph	139.14 feet	28.92 ft/s ²
8	60.09 mph	131.20 feet	29.60 ft/s ²
9	60.13 mph	138.68 feet	28.04 ft/s ²
10	59.91 mph	131.59 feet	29.33 ft/s ²
AVERAGE DECELERATION RATE:			28.84 ft/s²

(One cool down lap at 45 mph)

Phase II

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	60.26 mph	134.80 feet	28.98 ft/s ²
2	59.77 mph	131.41 feet	29.24 ft/s ²
3	59.76 mph	134.11 feet	28.64 ft/s ²
4	60.00 mph	135.03 feet	28.68 ft/s ²
5	59.78 mph	131.41 feet	29.25 ft/s ²
6	59.86 mph	132.92 feet	29.00 ft/s ²
7	60.36 mph	132.84 feet	29.50 ft/s ²
8	59.57 mph	130.59 feet	29.23 ft/s ²
9	60.30 mph	129.99 feet	30.09 ft/s ²
10	60.42 mph	136.29 feet	28.81 ft/s ²
AVERAGE DECELERATION RATE:			29.14 ft/s²

Phase III

OVERALL AVERAGE DECELERATION RATE:	28.99 ft/s²
---	-------------------------------

PROJECTED STOPPING DISTANCE FROM 60.0 mph:	133.6 feet
---	-------------------

Evidence of Severe Fading?	No
Vehicle Stopped in Straight Line?	Yes
Vehicle Stopped Within Correct Lane?	Yes

****All Vehicles Tested are Equipped with Anti-Lock Brakes****

BRAKE TESTING

2014.5 Ford Police Interceptor Utility AWD Ecoboost 3.5L

TEST LOCATION: Chrysler Proving Grounds	DATE: September 21, 2013
BEGINNING TIME: 9:55 a.m.	TEMPERATURE: 59.5° F

Phase I

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	60.02 mph	136.03 feet	28.48 ft/s ²
2	59.00 mph	131.82 feet	28.41 ft/s ²
3	59.45 mph	135.42 feet	28.07 ft/s ²
4	60.70 mph	140.82 feet	28.14 ft/s ²
5	59.79 mph	135.19 feet	28.44 ft/s ²
6	60.60 mph	134.60 feet	29.34 ft/s ²
7	60.34 mph	138.21 feet	28.33 ft/s ²
8	59.97 mph	131.72 feet	29.37 ft/s ²
9	59.49 mph	130.74 feet	29.11 ft/s ²
10	59.84 mph	142.08 feet	27.11 ft/s ²
AVERAGE DECELERATION RATE:			28.48 ft/s²

(One cool down lap at 45 mph)

Phase II

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	59.90 mph	135.45 feet	28.49 ft/s ²
2	60.10 mph	133.45 feet	29.11 ft/s ²
3	60.72 mph	144.94 feet	27.36 ft/s ²
4	60.20 mph	133.69 feet	29.16 ft/s ²
5	60.08 mph	132.32 feet	29.34 ft/s ²
6	59.87 mph	134.44 feet	28.67 ft/s ²
7	60.80 mph	134.28 feet	29.61 ft/s ²
8	60.55 mph	134.01 feet	29.43 ft/s ²
9	60.25 mph	131.84 feet	29.61 ft/s ²
10	59.68 mph	134.17 feet	28.55 ft/s ²
AVERAGE DECELERATION RATE:			28.93ft/s²

Phase III

OVERALL AVERAGE DECELERATION RATE:	28.71 ft/s²
---	-------------------------------

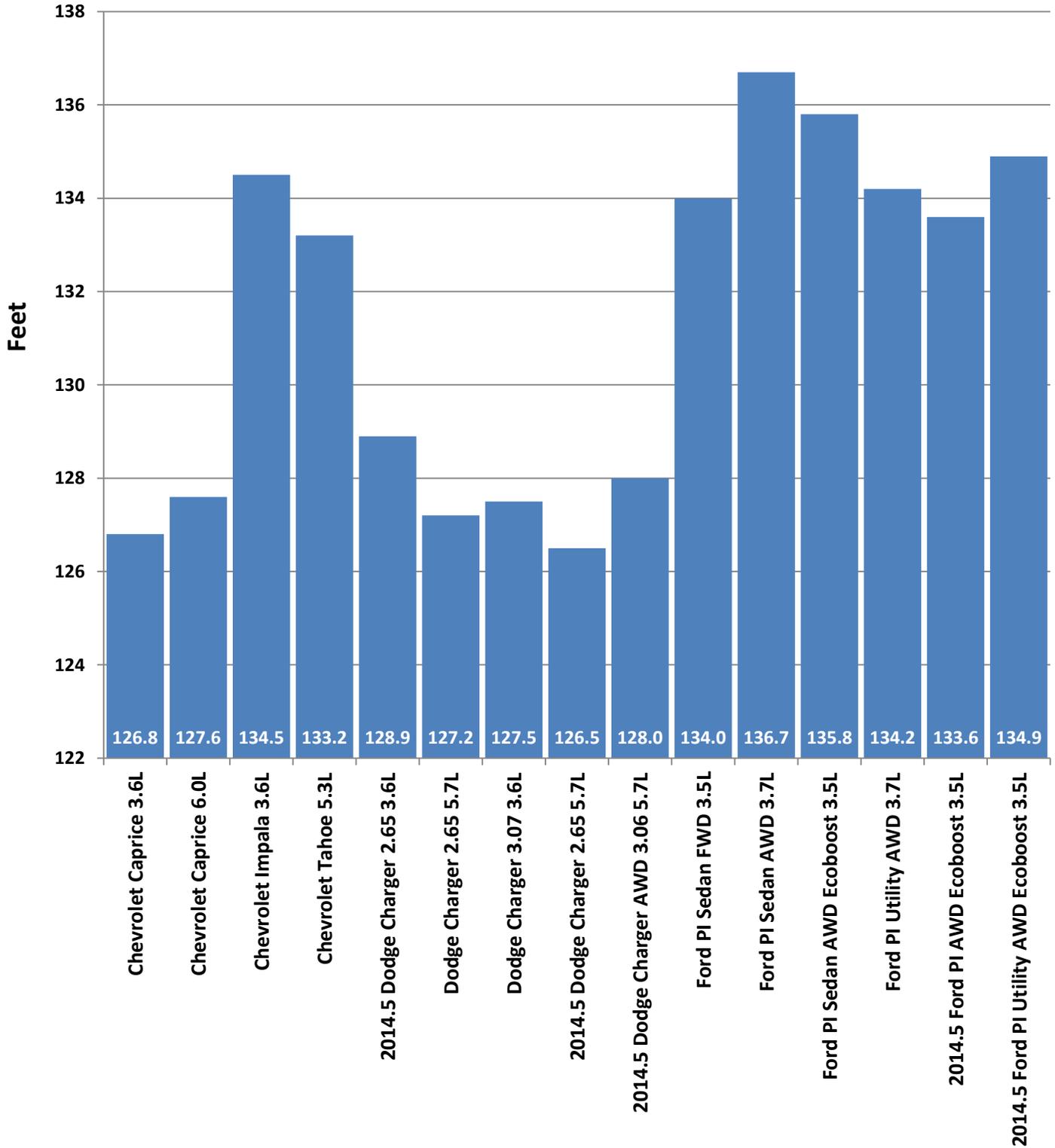
PROJECTED STOPPING DISTANCE FROM 60.0 mph:	134.9 feet
---	-------------------

Evidence of Severe Fading?	No
Vehicle Stopped in Straight Line?	Yes
Vehicle Stopped Within Correct Lane?	Yes

****All Vehicles Tested are Equipped with Anti-Lock Brakes****

2014 Brake Testing

Projected Stopping Distance





ERGONOMICS AND COMMUNICATIONS

TEST OBJECTIVE

Rate each test vehicle's ability to:

1. Provide a suitable environment for the patrol officer in the performance of his/her assigned tasks.
2. Accommodate the required communications and emergency warning equipment and assess the relative difficulty of such installations.

TEST METHODOLOGY

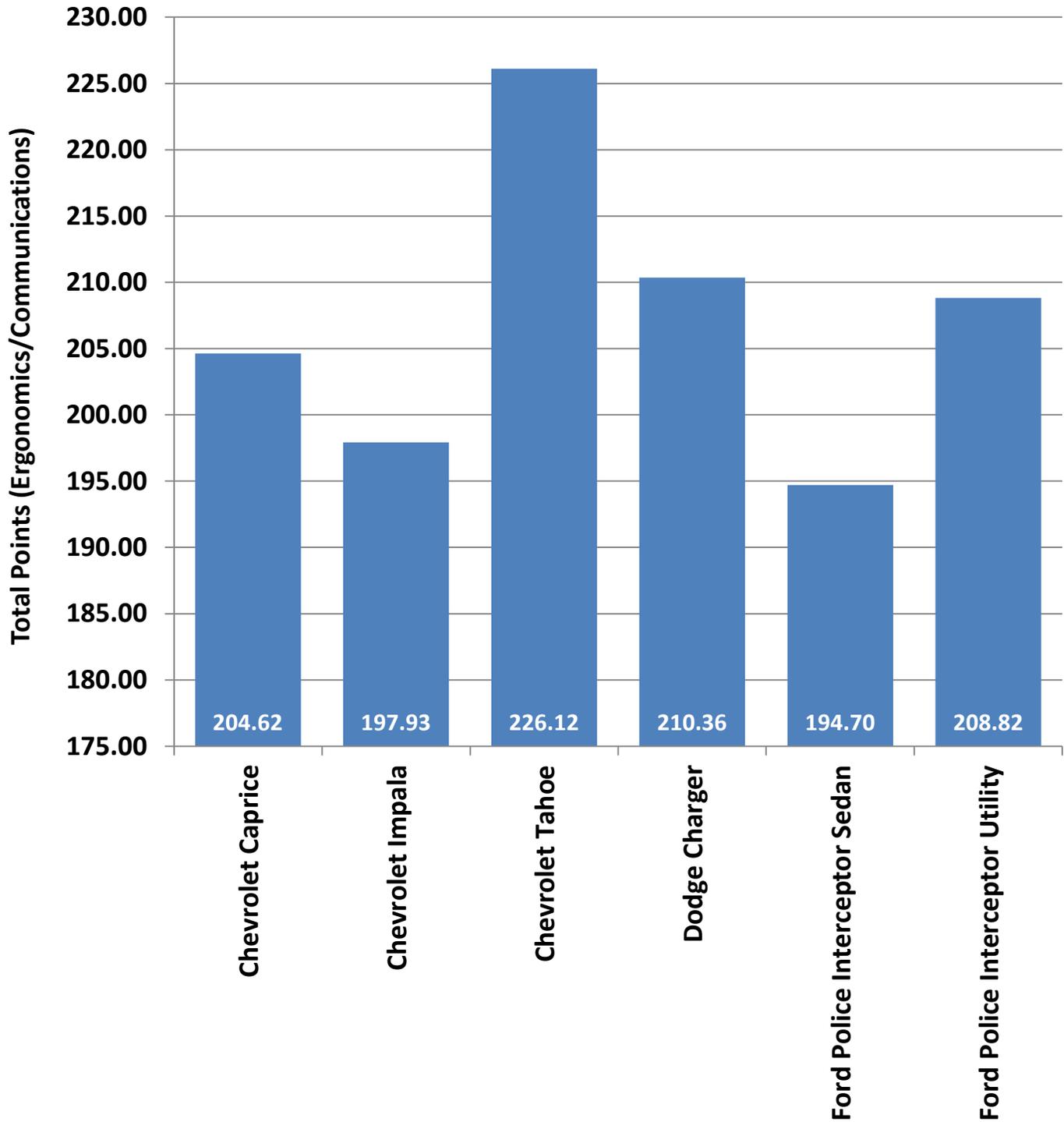
Utilizing the ergonomics portion of the form, a minimum of four officers (in this case 10) individually and independently compare and score each test vehicle on the various comfort, instrumentation, and visibility items. The installation and communications portion of the evaluation is conducted by personnel from DIT Communications, based upon the relative difficulty of the necessary installations. Each factor is graded on a 1 to 10 scale, with 1 representing "totally unacceptable," 5 representing "average," and 10 representing "superior." The scores are averaged to minimize personal prejudice for or against any given vehicle.



ERGONOMICS AND COMMUNICATIONS

	Chevrolet Caprice	Chevrolet Impala	Chevrolet Tahoe	Dodge Charger	Ford Police Interceptor	Ford Police Interceptor Utility
FRONT SEAT						
Padding	7.50	8.00	8.10	7.50	7.40	7.70
Depth of Bucket Seat	7.60	6.90	7.70	7.50	6.80	6.70
Adjustability – Front to Rear	6.00	7.40	7.90	8.20	7.70	7.60
Upholstery	7.60	7.00	7.90	7.50	7.60	7.70
Bucket Seat Design	7.70	6.70	7.60	7.30	6.80	6.80
Headroom	6.90	7.00	9.00	7.50	7.40	8.90
Seatbelts	6.60	7.30	8.40	7.80	7.80	8.20
Ease of Entry and Exit	7.70	7.00	8.80	7.60	6.20	8.50
Overall Comfort Rating	7.50	7.00	8.50	7.70	7.30	8.10
REAR SEAT						
Leg room – Front seat back	7.60	4.50	8.30	5.60	5.10	6.90
Ease of Entry and Exit	7.10	4.90	8.30	5.40	4.60	7.30
INSTRUMENTATION						
Clarity	7.50	7.90	8.00	7.70	7.20	7.00
Placement	7.30	8.00	8.10	7.90	7.20	7.40
VEHICLE CONTROLS						
Pedals, Size, and Position	7.50	6.90	8.40	7.70	6.60	7.30
Power Window Switch	7.30	7.40	7.70	8.90	7.50	7.50
Inside Door Lock Switch	7.00	6.80	7.90	7.90	7.30	7.40
Automatic Door Lock Switch	6.50	6.00	7.90	7.90	6.10	6.20
Outside Mirror Controls	7.00	6.70	8.10	7.90	7.70	7.80
Steering Wheel, Size, Tilt Release, and Surface	7.50	7.00	7.50	8.00	7.30	7.50
Heat/AC Vent Placement and Adjustability	7.50	7.50	7.60	8.00	6.90	7.20
VISIBILITY						
Front (Windshield)	8.00	8.10	8.80	7.60	7.50	8.40
Rear (Back Window)	7.10	7.00	7.20	6.40	5.20	6.10
Left Rear Quarter	7.00	7.10	6.90	6.30	6.60	6.90
Right Rear Quarter	7.20	6.90	6.80	6.30	6.00	6.80
Outside Rear View Mirrors	6.10	5.70	9.00	7.00	7.50	7.80
COMMUNICATIONS						
Dashboard Accessibility	8.00	8.75	8.82	8.64	8.18	8.14
Trunk Accessibility	7.65	8.40	8.40	8.45	7.80	7.65
Engine Compartment	8.67	8.08	8.50	8.17	7.42	7.33
TOTAL SCORES	204.62	197.93	226.12	210.36	194.70	208.82

2014 Ergonomics/Communications Vehicle Scores





FUEL ECONOMY

TEST OBJECTIVE

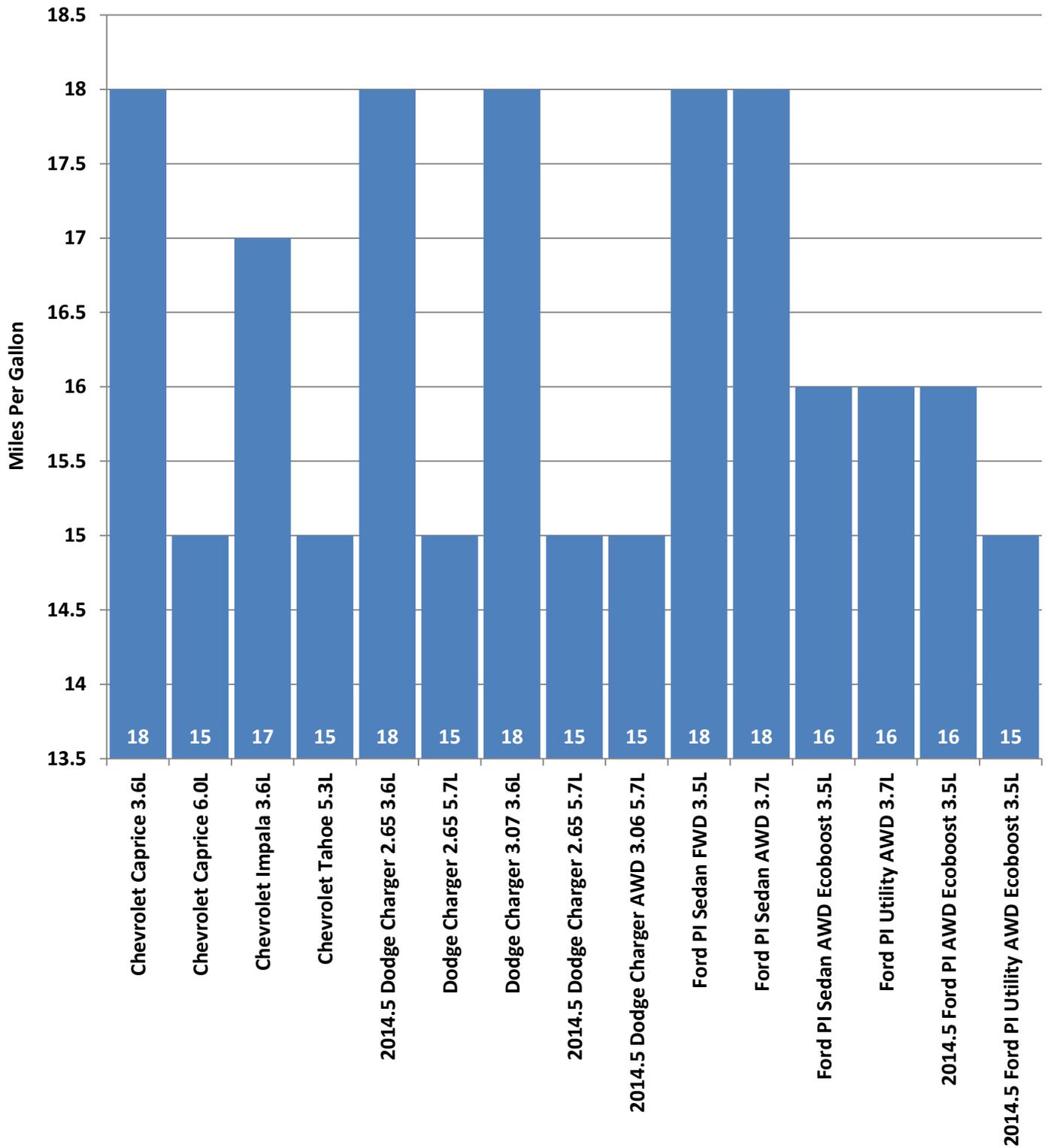
To determine the fuel economy potential of all vehicles being evaluated. The data used for scoring are both valid and reliable in a comparison sense, while not necessarily being an accurate predictor of actual fuel economy in police patrol service.

TEST METHODOLOGY

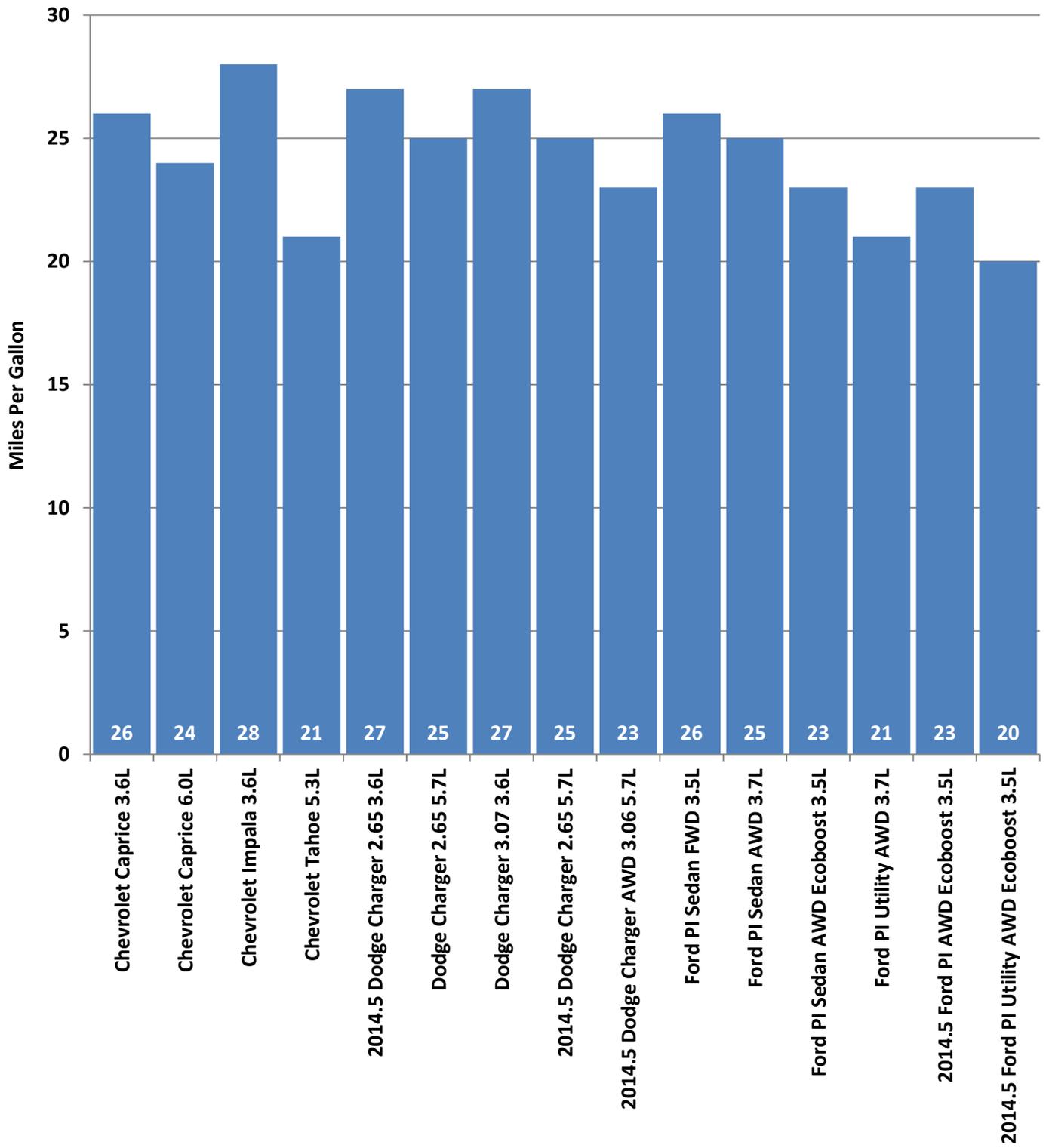
The vehicles will be scored based on estimates for city fuel economy to the nearest 1/10th mile per gallon (mpg) developed from data supplied by the vehicle manufacturer and certified by the Environmental Protection Agency.

Vehicles Make/Model/Engine	E.P.A. Miles Per Gallon		
	City Label	Highway Label	Combined Label
Chevrolet Caprice 3.6L	18	26	21
Chevrolet Caprice 6.0L	15	24	18
Chevrolet Impala 3.6L	17	28	21
Chevrolet Tahoe 5.3L	15	21	17
2014.5 Dodge Charger 2.65 3.6L	18	27	21
Dodge Charger 2.65 5.7L	15	25	18
Dodge Charger 3.07 3.6L	18	27	21
2014.5 Dodge Charger 2.65 5.7L	15	25	18
2014.5 Dodge Charger AWD 3.06 5.7L	15	23	18
Ford PI Sedan FWD 3.5L	18	26	21
Ford PI Sedan AWD 3.7L	18	25	21
Ford PI Sedan AWD Ecoboost 3.5L	16	23	18
Ford PI Utility AWD 3.7L	16	21	18
2014.5 Ford PI AWD Ecoboost 3.5L	16	23	18
2014.5 Ford PI Utility AWD Ecoboost 3.5L	15	20	17

2014 FUEL ECONOMY COMPARISON "CITY" EPA ESTIMATES

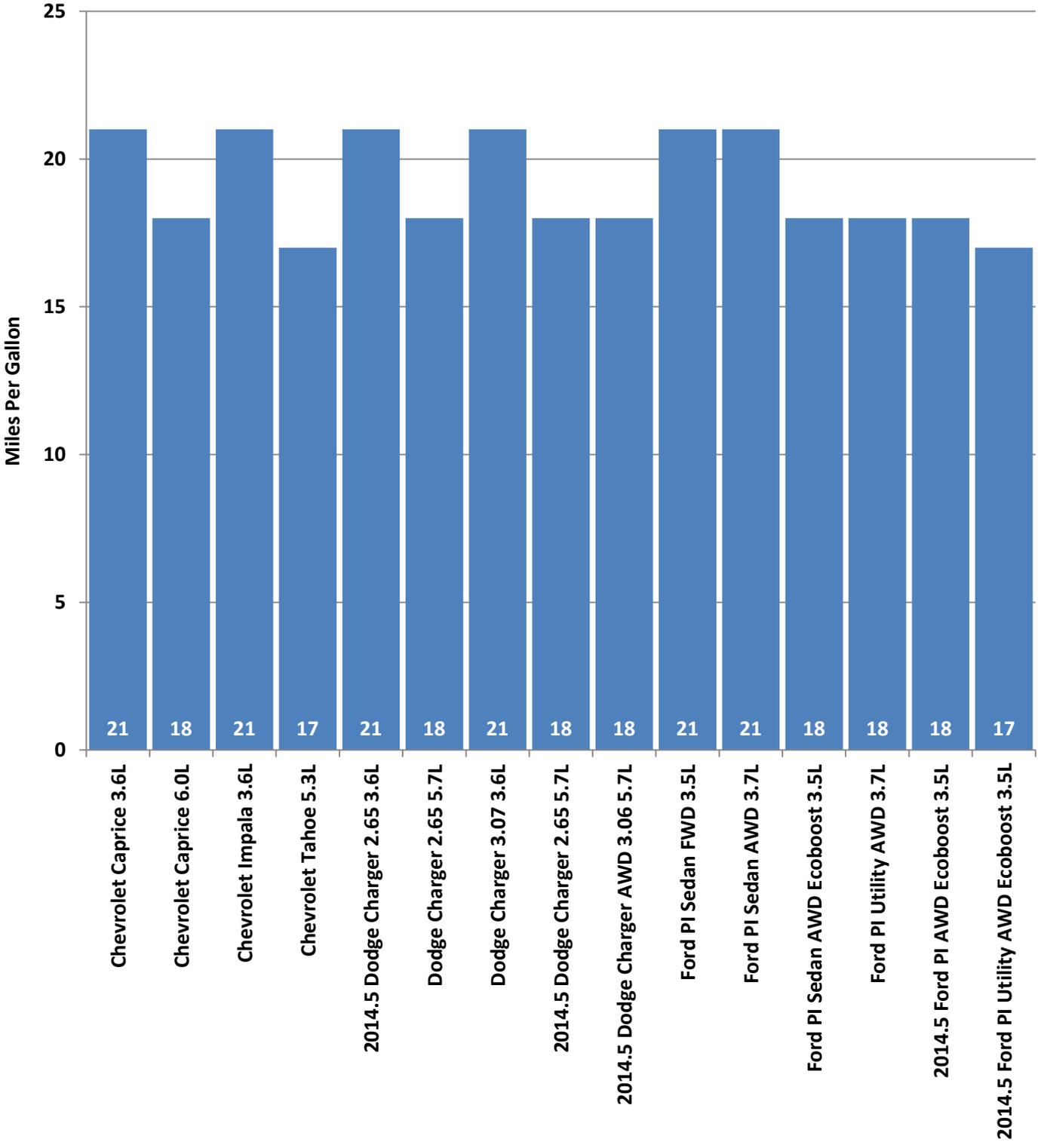


2014 FUEL ECONOMY COMPARISON "HIGHWAY" EPA ESTIMATES



2014 FUEL ECONOMY COMPARISON

"COMBINED" EPA ESTIMATES



MICHIGAN STATE POLICE SCORING AND BID ADJUSTMENT METHODOLOGY*

STEP I: RAW SORES

Raw scores are developed, through testing, for each vehicle in each of six evaluation categories. The raw scores are expressed in terms of seconds, feet per second², miles-per-hour, points, and miles-per-gallon.

VEHICLE DYNAMICS (seconds)	BRAKING RATE (ft/sec ²)	ACCELERATION TO 100MPH (seconds)	TOP SPEED (mph)	ERGONOMICS & COMMUNICATIONS (points)	FUEL ECONOMY (mpg)
94.39	30.77	13.65	154	235.88	21.00

STEP II: DEVIATION FACTOR

In each evaluation category, the best scoring vehicle's score is used as the benchmark against which each of the other vehicles' scores are compared. (In the Vehicle Dynamics and Acceleration categories the lowest score is best, while in the remainder of the categories, the highest score is best.) The best scoring vehicle in a given category received a deviation factor of "0." The "deviation factor" is then calculated by determining the absolute difference between each vehicle's raw score and the best score in that category. The absolute difference is then divided by the best score, with the result being the "deviation factor."

CAR MAKE/MODEL	TOP SPEED
CAR "A"	130 0.156
CAR "B"	139 0.097
CAR "C"	148 0.039
CAR "D"	154 0.000

EXAMPLE:

$$\begin{array}{ccccccc}
 \text{Best Score} & & \text{Other Vehicle} & & \text{Absolute} & & \text{Best} & & \text{Deviation Factor} \\
 \text{(Car "D")} & & \text{Score (Car "A")} & & \text{Difference} & & \text{Score} & & \text{(Car "A")} \\
 154 & - & 130 & = & 24 & / & 154 & = & .156
 \end{array}$$

STEP III: WEIGHTED CATEGORY SCORE

Each vehicle's weighted category score is determined by multiplying the deviation factor (as determined in Step II) by the category weight.

RAW SCORE
DEVIATION FACTOR
WEIGHTED CATEGORY SCORE

10 points	(category weight)
TOP SPEED (mph)	
130	
.156	
1.56	$.042 \times 10 = .420$

*All mathematical computations are to be rounded to the third decimal place.

STEP IV: TOTAL WEIGHTED SCORE

Adding together the six (6) weighted category scores for that vehicle derives the total weighted score for each vehicle.

EXAMPLE:

CAR	30 pts. VEHICLE DYNAMICS (seconds)	25 pts. BRAKE DECELERATION (ft/sec ²)	20 pts. ACCELERATION (seconds)	10 pts. TOP SPEED (mph)	10 pts. ERGONOMICS & COMMUNICATION (points)	5 pts. FUEL ECONOMY (mpg)	TOTAL WEIGHTED SCORE
Car "A"	97.71 .035 1.055	29.82 .031 .772	18.43 .350 7.004	139 .097 .970	235.88 .000 .000	18 .143 .714	10.515

STEP V: BID ADJUSTMENT FIGURE

The bid adjustment figure that we have chosen to use is one percent (1%) of the lowest bid price received. As an example, in this and the following two steps, the lowest bid price received was \$18,097.00, which results in a bid adjustment figure of **\$180.97**.

STEP VI: ACTUAL DOLLAR ADJUSTMENT

The actual dollar adjustment for a vehicle is determined by multiplying that vehicle's total weighted score by the bid adjustment figure as shown at right.

TOTAL WEIGHTED SCORE	BID ADJUSTMENT FIGURE	ACTUAL DOLLAR ADJUSTMENT
10.515	X \$180.97	= \$1,902.20

STEP VII: ADJUSTED BID PRICE

The actual dollar adjustment amount arrived at for each vehicle is added to that vehicle's bid price. Provided other necessary approvals are received, the vehicle with the lowest adjusted bid price will be the vehicle purchased. (The amount paid for the purchased vehicles will be the actual bid price.)

ACTUAL DOLLAR ADJUSTMENT	ACTUAL BID PRICE	ADJUSTED BID PRICE
\$1,902.90	+ \$23,414.00	= \$25,316.90

MOTORCYCLES

Like many law enforcement agencies, the Michigan State Police used motorcycles until late 1941 and then switched to automobiles. The Michigan State Police rekindled interest in motorcycles for day to day patrol operations in 1993. In 2004, Michigan State Police headquarters asked if we had additional information as a resource for our purchasing decisions regarding motorcycles. During that time, we were given direction to expand vehicle testing to include motorcycle testing. We would like to thank BMW, Harley-Davidson, Moto Guzzi, and Victory for participating and providing their assistance in preparation for this year's successful testing program.

We are constantly evaluating our various tests with the manufacturers and the law enforcement industry to provide you with the most objective test data available. While there are many similarities to automobiles, there are also quite a few differences.

This year we conducted motorcycle brake testing on our track at the Precision Driving Unit in Lansing. Our facility provides a very flat and consistent surface for this type of testing. Thus, better information is provided to the reader as to the braking capabilities of each motorcycle.

The motorcycle dynamics portion was again conducted at Grattan Raceway. Grattan Raceway provides a two mile road course that has several different curves and elevation changes that tests the motorcycles high speed handling characteristics during pursuit and emergency response riding. See the motorcycle dynamics test objectives for further information.

When looking at the data, it is very important for the reader to apply your mission requirements to the motorcycle you are considering so you may make an appropriate decision. This report is not an endorsement of products, but a means of learning what's available for your officers so they can do their job more effectively and safely. If anything in this report requires further explanation or clarification, please call or write the Michigan State Police Precision Driving Unit.



BMW R1200 RTP



TEST MOTORCYCLE DESCRIPTION

MAKE BMW	MODEL R1200 RT-P	SALES CODE NO. 13RB
ENGINE DISPLACEMENT	CUBIC CENTIMETERS 1170	ENGINE 2-Cylinder
FUEL SYSTEM	BMSK-P Injection	EXHAUST Stainless Steel with Catalytic Converter
BORE & STROKE	101 mm x 73 mm	ALTERNATOR 720 W
TORQUE	88 ft. – lbs. @ 6000 RPM	BATTERY 2 x 19 Ah Gel Maintenance Free
COMPRESSION RATIO	12.0:1	
TRANSMISSION	PRIMARY DRIVE Gear 1:1.882	FINAL DRIVE Shaft with Ring & Pinion Gear
GEAR RATIO	1:2.75 Rear Drive Ratio	
LEAN ANGLE	LEFT 46°	RIGHT 46°
CLUTCH	Self-Adjusting Hydraulic Actuating Single Plate Dry Clutch	
WHEELS/TIRES	Die Cast Aluminum MTH2 Rim Profile Fitted with Dunlop Road Smart Run-Flat Tires (Front 120/70ZR17 Rear: 180/55ZR17) (California Highway Patrol run flat protocol compliant)	
FRONT SUSPENSION	FORK ANGLE 63.4 BMW Telelever	RAKE Castor in normal Position – 4.3”
REAR SUSPENSION	BMW Evo Paralever	
SUSPENSION TRAVEL	FRONT 4.7 inches	REAR 5.3 inches
GROUND CLEARANCE, MINIMUM	5.125 inches	
BRAKE SYSTEM	BMW IABS II Partial-Integral Brake System	
BRAKES, FRONT	TYPE Dual 12.6” Disc	SWEPT AREA 186 sq. in.
BRAKES, REAR	TYPE Single 10.4” Disc	SWEPT AREA 62 sq. in.
FUEL CAPACITY	GALLONS 6.6	LITERS 25.0
OIL CAPACITY	4 Quarts	
GENERAL MEASUREMENTS	WHEELBASE 58.4 inches	LENGTH 87.8 inches
	TEST WEIGHT 671 lbs.	OVERALL HEIGHT 56.3 in.
	SEAT HEIGHT 32.2” / 33.1” (30.7” / 31.5” Optional Low Seat)	
EPA MILEAGE EST. (MPG) (Based on *FTP Standard Test)	CITY 43.3*	HIGHWAY 65.3*

* FTP (Federal Test Procedure) mileage figures exhaust emission test

BMW F800 GTP



TEST MOTORCYCLE DESCRIPTION

MAKE BMW	MODEL F800 GT-P		SALES CODE NO. 13FB	
ENGINE DISPLACEMENT	CUBIC CENTIMETERS 798		ENGINE Twin	
FUEL SYSTEM	Electronic Intake Pipe Injection BMS-K+ Management		EXHAUST Closed Loop 3-Way CAT/Stainless	
BORE & STROKE	82 mm x 75.6 mm		ALTERNATOR 3-Phase 400W	
TORQUE	63 ft. – lbs. @ 5800 RPM		BATTERY 12V/12Ah Maintenance Free	
COMPRESSION RATIO	12.0:1			
TRANSMISSION	PRIMARY DRIVE Gear	FINAL DRIVE Belt with Shock Damper		
GEAR RATIO	1.943 (35/68 teeth)			
LEAN ANGLE	LEFT 46° (49° without center stand)		RIGHT 46° (49° without center stand)	
CLUTCH	Wet Multi-Plate in Oil Bath			
WHEELS/TIRES	Cast Alloy Wheels with Metzler OEM Tires (Front: 120/70ZR17 Rear:180/55ZR17)			
FRONT SUSPENSION	FORK ANGLE 64.2°		CASTOR 3.7 in.	
REAR SUSPENSION	Single Sided Swing Arm with Central Spring Strut			
SUSPENSION TRAVEL	FRONT 4.9 inches		REAR 4.9 inches	
GROUND CLEARANCE, MINIMUM	5.2 inches			
BRAKE SYSTEM	Hydraulic with Standard ABS			
BRAKES, FRONT	TYPE Dual 12.6" Disc	SWEPT AREA 186 sq. in.		
BRAKES, REAR	TYPE Single 10.4" Disc	SWEPT AREA 62 sq. in.		
FUEL CAPACITY	GALLONS 4.0		LITERS 15.0	
OIL CAPACITY	3.2 Quarts, with filter replacement			
GENERAL MEASUREMENTS	WHEELBASE 59.6 inches		LENGTH 84.9 inches	
	TEST WEIGHT 563 lbs.		OVERALL HEIGHT 49.1 in.	
	SEAT HEIGHT 31.5 inches			
EPA MILEAGE EST. (MPG) (Based on *FTP Standard Test)	CITY 69 @ 55 mph		HIGHWAY 55 @ 75 mph	

Harley Davidson FLHP



TEST MOTORCYCLE DESCRIPTION

MAKE Harley-Davidson	MODEL FLHP		SALES CODE NO.	
ENGINE DISPLACEMENT	CUBIC CENTIMETERS 1690CC		ENGINE Twin Cam 103 HO Air Cooled V-Twin 4 Stroke w/Oil Cooler	
FUEL SYSTEM	Electronic Sequential Port FI		EXHAUST Two into One into Two Crossover Dual	
BORE & STROKE	3.875 X 4.375		ALTERNATOR 50 Amp	
TORQUE	104.7 @ 3250 RPM		BATTERY 12VDC, 28 Amp/Hour, 270 CCA	
COMPRESSION RATIO	9.7:1			
TRANSMISSION	PRIMARY DRIVE 34/46		FINAL DRIVE 32/68	
GEAR RATIO	1 st : 9.593; 2 nd : 6.650; 3 rd : 4.938; 4 th : 4.0; 5 th : 3.407; 6 th : 2.875			
LEAN ANGLE	LEFT 31°		RIGHT 33°	
CLUTCH	Wet Multi-Plate / Cable Actuated			
WHEELS/TIRES	Wheels: Impeller Cast Aluminum Front & Rear (Front 17x3, Rear 16x5) Tires: Front Dunlop D408F 130/80B17 – Rear Dunlop D407T 180/65B16 (California Highway Patrol run flat protocol compliant)			
FRONT SUSPENSION	FORK ANGLE 29.25°		RAKE 26°	
REAR SUSPENSION	Swing Arm with Air Adjustable Shocks			
SUSPENSION TRAVEL	FRONT 4.60 inches		REAR 3.0 inches	
GROUND CLEARANCE, MINIMUM	5.3 inches			
BRAKE SYSTEM	Hydraulic Disc/Reflex™ Electronically Linked with ABS			
BRAKES, FRONT	TYPE Dual Disc		SWEPT AREA 180 inches ²	
BRAKES, REAR	TYPE Single Disc		SWEPT AREA 90 inches ²	
FUEL CAPACITY	GALLONS 6.0		LITERS 22.71	
OIL CAPACITY	4.0 Quarts			
GENERAL MEASUREMENTS	WHEELBASE 64 inches		LENGTH 96.5 inches	
	TEST WEIGHT 840 lbs.		OVERALL HEIGHT 56.3 in.	
	SEAT HEIGHT 27.3 Inches-Laden			
EPA MILEAGE EST. (MPG) (Based on *FTP Standard Test)	COMBINED 42 MPG			

Harley Davidson FLHTP



TEST MOTORCYCLE DESCRIPTION

MAKE Harley-Davidson	MODEL FLHTP		SALES CODE NO.	
ENGINE DISPLACEMENT	CUBIC CENTIMETERS 1690CC		ENGINE Twin Cam 103 HO Air Cooled V-Twin 4 Stroke w/Oil Cooler	
FUEL SYSTEM	Electronic Sequential Port FI		EXHAUST Two into One into Two Crossover Dual	
BORE & STROKE	3.875 X 4.375		ALTERNATOR 50 Amp	
TORQUE	104.7 @ 3250 RPM		BATTERY 12VDC, 28 Amp/Hour, 270 CCA	
COMPRESSION RATIO	9.7:1			
TRANSMISSION	PRIMARY DRIVE 34/46	FINAL DRIVE 32/68		
GEAR RATIO	1 st : 9.593; 2 nd : 6.650; 3 rd : 4.938; 4 th : 4.0; 5 th : 3.407; 6 th : 2.875			
LEAN ANGLE	LEFT 31°		RIGHT 33°	
CLUTCH	Wet Multi-Plate / Hydraulically Actuated			
WHEELS/TIRES	Wheels: Impeller Cast Aluminum Front & Rear (Front 17x3, Rear 16x5) Tires: Front Dunlop D408F 130/80B17 – Rear Dunlop D407T 180/65B16 (California Highway Patrol run flat protocol compliant)			
FRONT SUSPENSION	FORK ANGLE 29.25°		RAKE 26°	
REAR SUSPENSION	Swing Arm with Air Adjustable Shocks			
SUSPENSION TRAVEL	FRONT 4.60 inches		REAR 3.0 inches	
GROUND CLEARANCE, MINIMUM	5.3 inches			
BRAKE SYSTEM	Hydraulic Disc/Reflex™ Electronically Linked with ABS			
BRAKES, FRONT	TYPE Dual Disc		SWEPT AREA 180 inches ²	
BRAKES, REAR	TYPE Single Disc		SWEPT AREA 90 inches ²	
FUEL CAPACITY	GALLONS 6.0		LITERS 22.71	
OIL CAPACITY	4.0 Quarts			
GENERAL MEASUREMENTS	WHEELBASE 64 inches		LENGTH 96.5 inches	
	TEST WEIGHT 836 lbs.		OVERALL HEIGHT 56.3 in.	
	SEAT HEIGHT 27.3 Inches-Laden			
EPA MILEAGE EST. (MPG) (Based on *FTP Standard Test)	COMBINED 42 MPG			

Moto Guzzi California 1400 Touring ABS



TEST MOTORCYCLE DESCRIPTION

MAKE Moto Guzzi	MODEL California 1400 Touring		SALES CODE NO.	
ENGINE DISPLACEMENT	CUBIC CENTIMETERS 1380CC		ENGINE 90° V-Twin, 4-Stroke, 4 Valves, Double Ignition	
FUEL SYSTEM	Phased Electronic Multiport Sequential Injection, Magneti Marelli IAW7SM		EXHAUST Stainless Steel, 2-in-2 type, three-way catalytic converter with double lambda probe	
BORE & STROKE	104mm X 81.2 mm		ALTERNATOR 12V – 550 W	
TORQUE	87 lb/ft		BATTERY 12V – 18Ah	
COMPRESSION RATIO	10.5:1			
TRANSMISSION	PRIMARY DRIVE 26/35 with helical teeth	FINAL DRIVE double cardan joint and fixed bevel gear seat, drive ratio 10/36		
GEAR RATIO	1 st : 2.235; 2 nd : 1.700; 3 rd : 1.348; 4 th : 1.115; 5 th : 0.968; 6 th : 0.8			
LEAN ANGLE	LEFT 36°		RIGHT 36°	
CLUTCH	Single-Disc with integrated anti-vibration buffer			
WHEELS/TIRES	Wheels: Aluminum Alloy (Front Rim 3.50" x 18", Rear Rim 6.00" x 16") Tires: Front 130/70R18 – Rear 200/60R16			
FRONT SUSPENSION	FORK ANGLE 32°		RAKE 38°	
REAR SUSPENSION	Swingarm with double shock absorber with adjustable spring preload and rebound damping. (Custom: special shocks with separated reservoir tank, adjustable spring preload and compression/rebound damping)			
SUSPENSION TRAVEL	FRONT 4.7 inches (120mm)		REAR 4.3 inches (110 mm)	
GROUND CLEARANCE, MINIMUM	6.4 inches (165 mm)			
BRAKE SYSTEM				
BRAKES, FRONT	Dual 320 mm stainless steel floating discs, Brembo radial calipers with 4 horizontally opposed pistons			
BRAKES, REAR	282 mm stainless steel fixed disc, Brembo floating caliper with 2 parallel pistons			
FUEL CAPACITY	GALLONS 5.4 (Reserve – 1.3)		LITERS 20.5 (Reserve – 5)	
OIL CAPACITY	Engine plus Filter: 4010cc; Gear Box: 250cc			
GENERAL MEASUREMENTS	WHEELBASE 66.3 inches (1685 mm)		LENGTH 96.2 inches (2445 mm)	
	TEST WEIGHT 799 pounds		OVERALL HEIGHT 57.4 inches	
	SEAT HEIGHT 29.1 inches (740 mm) (Optional: 28.3 inches – 720 mm)			
EPA MILEAGE EST. (MPG) (Based on *FTP Standard Test)	CITY 32.1 MPG	HIGHWAY 38.3 MPG	COMBINED 37.6 MPG	

Moto Guzzi Norge 1200 ABS



TEST MOTORCYCLE DESCRIPTION

MAKE Moto Guzzi	MODEL Norge 1200 ABS	SALES CODE NO.	
ENGINE DISPLACEMENT	CUBIC CENTIMETERS 1151CC	ENGINE 90° V-Twin, 4-Stroke	
FUEL SYSTEM	Fuel Injection	EXHAUST 2 into 1 Stainless Dual Lambda	
BORE & STROKE	95 mm X 81.2 mm	ALTERNATOR 12V – 540 W	
TORQUE	90CV at 7500 RPM	BATTERY 12V-18 Amp/h	
COMPRESSION RATIO	9.8:1		
TRANSMISSION	Mechanical 6 gear with pedal lever on the left side of the engine	PRIMARY DRIVE 24/35	
GEAR RATIO	1 st : 17/38; 2 nd : 20/34; 3 rd : 23/31; 4 th : 26/29; 5 th : 31/30; 6 th : 29/25 Secondary Drive: 12/44 (Cardan)		
LEAN ANGLE	LEFT 45°	RIGHT 45°	
CLUTCH	Dry Dual Disc		
WHEELS/TIRES	Wheels: Alloy (Front Rim 3.5" x 17", Rear Rim 5.5" x 17") Tires: Front 120/70ZR17 – Rear 180/55ZR17		
FRONT SUSPENSION	FORK ANGLE 25.30°	RAKE 32°	
REAR SUSPENSION	Single sided with progressive linkage, single shock absorber with adjustable rebound, adjustable preload settings with ergonomic handle		
SUSPENSION TRAVEL	FRONT 4.7 inches	REAR 5.5 inches	
GROUND CLEARANCE, MINIMUM	72.8 inches		
BRAKE SYSTEM			
BRAKES, FRONT	Dual stainless steel floating disc brake diameter – 320 mm – 4 paired differentiated calipers		
BRAKES, REAR	Stainless steel disc brake diameter – 282 mm – parallel dual calipers		
FUEL CAPACITY	GALLONS 6 gallons	LITERS 23 liters	
OIL CAPACITY			
GENERAL MEASUREMENTS	WHEELBASE 58.9 inches	LENGTH 86.4 inches	
	TEST WEIGHT 673 pounds	OVERALL HEIGHT 55.3 inches	
	SEAT HEIGHT 31.5 inches		
EPA MILEAGE EST. (MPG) (Based on *FTP Standard Test)	CITY 28.1 MPG	HIGHWAY 37.6 MPG	COMBINED 39.3 MPG

Victory Commander



TEST MOTORCYCLE DESCRIPTION

MAKE Victory	MODEL Commander	SALES CODE NO.	
ENGINE DISPLACEMENT	CUBIC CENTIMETERS 1731 cc	ENGINE Overhead Cam, 106 oil/air cooled, v-twin 4 stroke with oil cooler	
FUEL SYSTEM	Electronic Fuel Injection with Dual 45mm Throttle Body	EXHAUST Two into One into Two Crossover Dual	
BORE & STROKE	101 mm x 108 mm	ALTERNATOR 48 amp	
TORQUE	113 ft/lbs @ 2700 RPM	BATTERY 12V 18 Amp/hour 240 CCA	
COMPRESSION RATIO	9.4:1		
TRANSMISSION	PRIMARY DRIVE Wet. Gear Drive with Torque Compensator 1:5:1	FINAL DRIVE Carbon Fiber Reinforced Belt 2.12:1	
GEAR RATIO	1 st : 3.13:1; 2 nd : 2.02:1; 3 rd : 1.50:1; 4 th : 1.20:1; 5 th : 1:1; 6 th : .87:1		
LEAN ANGLE	LEFT 33°	RIGHT 33°	
CLUTCH	Wet Multi-Plate		
WHEELS/TIRES	Wheels: Cast Aluminum – Front: 18 in x 3 in – Rear: 16 in x 5 in Tires: Front: Dunlop Elite 3 130/70R18, Rear: Dunlop Elite 3 180/60R16		
FRONT SUSPENSION	FORK ANGLE 5.6 in	RAKE 29.0	
REAR SUSPENSION	Link mono air adjustable shock		
SUSPENSION TRAVEL	FRONT 5.1 inches	REAR 4.7 inches	
GROUND CLEARANCE, MINIMUM	5.8 inches		
BRAKE SYSTEM	Independent ABS		
BRAKES, FRONT	TYPE Dual 300 x 5 mm floating rotor with 4 piston calipers ABS		
BRAKES, REAR	TYPE Single 300 x 7 mm floating rotor with 2 piston calipers ABS		
FUEL CAPACITY	GALLONS 5.8	LITERS 22	
OIL CAPACITY	5.0 Quarts		
GENERAL MEASUREMENTS	WHEELBASE 65.7 inches	LENGTH 106.4 inches	
	TEST WEIGHT 868 lbs.	OVERALL HEIGHT 53.2 in.	
	SEAT HEIGHT 26.25 inches		
EPA MILEAGE EST. (MPG) (Based on *FTP Standard Test)	CITY 42	HIGHWAY 47	COMBINED 44.5

MOTORCYCLE DYNAMICS TESTING

MOTORCYCLE DYNAMICS TEST OBJECTIVE

To determine each motorcycle's high speed handling characteristics and performance in comparison to other motorcycles. The course used is a two mile road racing type configuration containing hills, curves, and corners. The course simulates actual conditions encountered in pursuit or emergency driving situations in the field, with the exception of other traffic. The evaluation is a true test of the motorcycle manufacturers in offering balanced packages of acceleration capabilities, suspension components, and braking characteristics.

MOTORCYCLE DYNAMICS TEST METHODOLOGY

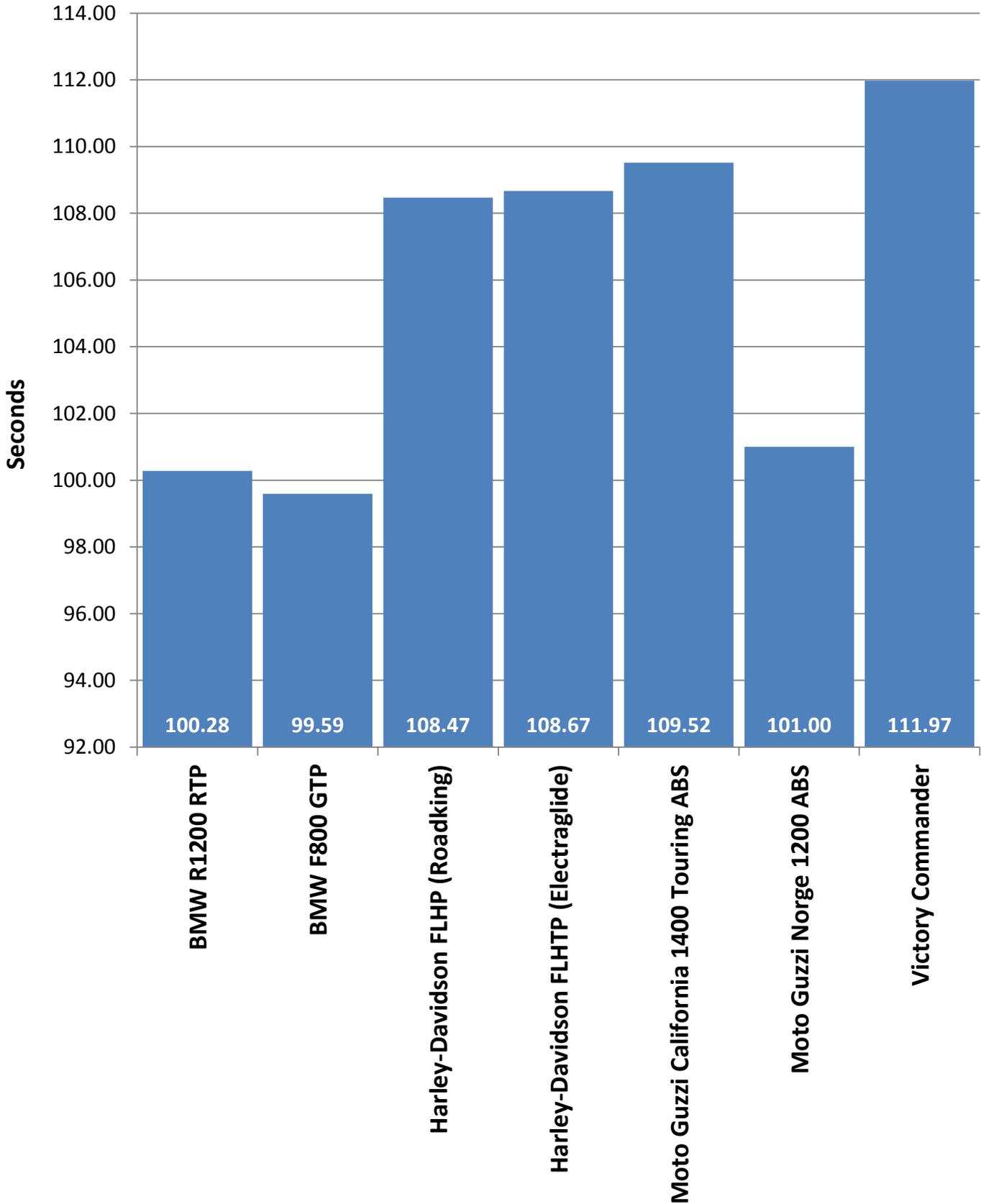
Each motorcycle is ridden over the course a total of 32 timed laps using four separate riders, each riding an 8 lap series. The final score for the motorcycle is the combined average (from the four riders) of the 5 fastest laps for each rider during the 8 lap series.



MOTORCYCLE DYNAMICS TESTING ON SEPTEMBER 19, 2013

Vehicles	Drivers	Lap 1	Lap 2	Lap 3	Lap 4	Lap 5	Average
BMW R1200 RTP	GROMAK	01:39.30	01:40.05	01:40.12	01:40.34	01:40.35	01:40.03
	JOHNSON	01:39.54	01:39.59	01:39.61	01:39.75	01:39.78	01:39.65
	ROGERS	01:39.61	01:39.65	01:39.88	01:39.91	01:40.10	01:39.83
	TRAMMEL	01:41.46	01:41.53	01:41.62	01:41.65	01:41.78	01:41.61
Overall Average							01:40.28
BMW F800 GTP	GROMAK	01:36.48	01:36.60	01:37.25	01:37.50	01:38.16	01:37.20
	JOHNSON	01:37.50	01:37.71	01:38.42	01:39.36	01:39.67	01:38.53
	ROGERS	01:36.91	01:38.10	01:38.58	01:38.84	01:39.79	01:38.44
	TRAMMEL	01:43.73	01:43.78	01:44.22	01:44.60	01:44.61	01:44.19
Overall Average							01:39.59
Harley Davidson FLHP (Roadking)	GROMAK	01:48.09	01:48.21	01:48.46	01:48.62	01:48.80	01:48.44
	JOHNSON	01:47.14	01:47.38	01:47.68	01:47.73	01:47.73	01:47.53
	ROGERS	01:47.63	01:47.73	01:47.94	01:48.40	01:48.67	01:48.07
	TRAMMEL	01:49.64	01:49.74	01:49.78	01:49.95	01:50.06	01:49.83
Overall Average							01:48.47
Harley Davidson FLHTP (Electraglide)	GROMAK	01:49.43	01:49.60	01:49.63	01:49.63	01:49.86	01:49.63
	JOHNSON	01:46.11	01:46.37	01:46.39	01:46.47	01:46.50	01:46.37
	ROGERS	01:48.34	01:48.56	01:48.81	01:48.94	01:49.13	01:48.76
	TRAMMEL	01:49.64	01:49.87	01:49.95	01:50.04	01:50.15	01:49.93
Overall Average							01:48.67
Moto Guzzi California 1400 Touring ABS	GROMAK	01:48.95	01:49.15	01:49.29	01:49.41	01:49.48	01:49.26
	JOHNSON	01:48.80	01:49.15	01:49.35	01:49.38	01:49.42	01:49.22
	ROGERS	01:47.63	01:47.94	01:48.22	01:48.41	01:48.42	01:48.12
	TRAMMEL	01:50.87	01:51.27	01:51.55	01:51.72	01:51.89	01:51.46
Overall Average							01:49.52
Moto Guzzi Norge 1200 ABS	GROMAK	01:38.55	01:38.57	01:39.48	01:39.52	01:39.56	01:39.14
	JOHNSON	01:39.40	01:39.72	01:39.77	01:39.85	01:40.40	01:39.83
	ROGERS	01:40.40	01:40.73	01:40.86	01:40.96	01:41.24	01:40.84
	TRAMMEL	01:43.79	01:44.04	01:44.18	01:44.48	01:44.49	01:44.20
Overall Average							01:41.00
Victory Commander	GROMAK	01:52.62	01:52.85	01:53.16	01:53.59	01:53.92	01:53.23
	JOHNSON	01:50.62	01:50.73	01:50.86	01:51.04	01:51.24	01:50.90
	ROGERS	01:51.01	01:51.18	01:51.31	01:51.40	01:51.42	01:51.26
	TRAMMEL	01:51.91	01:52.49	01:52.61	01:52.65	01:52.70	01:52.47
Overall Average							01:51.97

2014 Motorcycle Dynamics



MOTORCYCLE ACCELERATION & TOP SPEED TESTING

ACCELERATION TEST OBJECTIVE

To determine the ability of each test motorcycle to accelerate from a standing start to 60 mph, 80 mph, and 100 mph.

ACCELERATION TEST METHODOLOGY

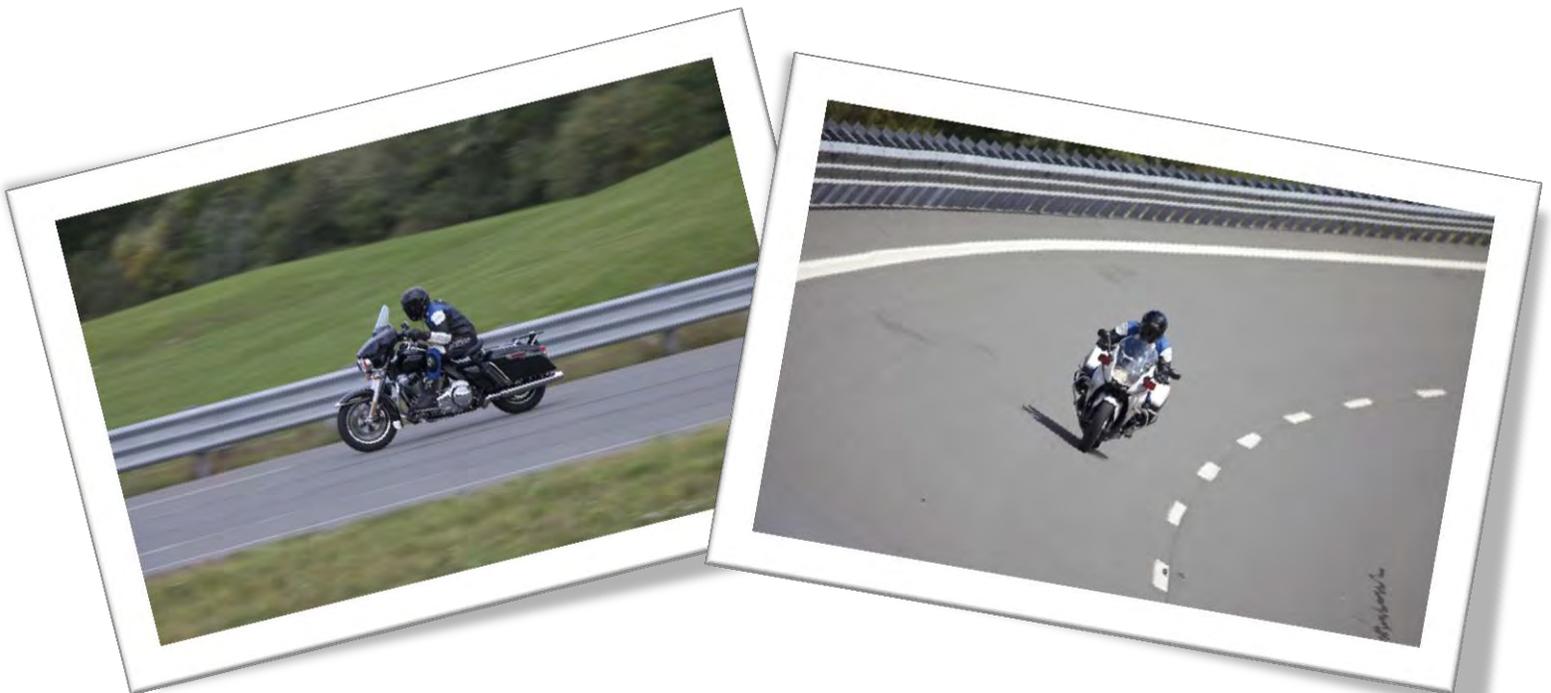
Using a Kistler L-350 Single Axis Optical Sensor, each motorcycle is driven through four acceleration sequences, two northbound and two southbound, to allow for wind direction. The four resulting times for each target speed are averaged and the average times are used to derive scores on the competitive test for acceleration.

TOP SPEED TEST OBJECTIVE

To determine the actual top speed attainable by each test motorcycle within a distance of 14 miles from a standing start.

TOP SPEED TEST METHODOLOGY

Following the fourth acceleration run, each test motorcycle will continue to accelerate to the top speed attainable within 14 miles from the start of the run. The highest speed attained within the 14-mile distance will be the vehicle's score on the competitive test for top speed.



TEST LOCATION: Chrysler Proving Grounds

DATE: September 21, 2013

BMW R1200 RTP

BEGINNING TIME: 2:56 p.m.
WIND VELOCITY: 6.7 mph

TEMPERATURE: 64.2° F
WIND DIRECTION: 332°

SPEEDS	TIME REQUIREMENTS*	RUN 1	RUN 2	RUN 3	RUN 4	AVERAGE
0 – 60	9.0 sec.	4.39	4.40	4.38	4.29	4.37
0 – 80	14.9 sec.	6.79	6.89	6.76	6.74	6.80
0 – 100	24.6 sec.	10.69	11.09	10.62	10.75	10.79

DISTANCE TO REACH 110 MPH: .25 mile
DISTANCE TO REACH 120 MPH: .54 mile

TOP SPEED ATTAINED: 130 mph

BMW F800 GTP

BEGINNING TIME: 12:56 p.m.
WIND VELOCITY: 7.9 mph

TEMPERATURE: 63.2° F
WIND DIRECTION: 312°

SPEEDS	TIME REQUIREMENTS*	RUN 1	RUN 2	RUN 3	RUN 4	AVERAGE
0 – 60	9.0 sec.	5.08	4.92	4.99	4.97	4.99
0 – 80	14.9 sec.	7.69	7.72	7.68	7.74	7.71
0 – 100	24.6 sec.	11.87	12.34	11.90	12.27	12.10

DISTANCE TO REACH 110 MPH: .33 mile
DISTANCE TO REACH 120 MPH: .59 mile

TOP SPEED ATTAINED: 139 mph

*Michigan State Police minimum requirement.

TEST LOCATION: Chrysler Proving Grounds

DATE: September 21, 2013

Harley Davidson FLHP (Roadking)

BEGINNING TIME: 11:19 a.m.
WIND VELOCITY: 8.2 mph

TEMPERATURE: 61.6° F
WIND DIRECTION: 337°

SPEEDS	TIME REQUIREMENTS*	RUN 1	RUN 2	RUN 3	RUN 4	AVERAGE
0 – 60	9.0 sec.	5.48	5.70	5.56	5.53	5.57
0 – 80	14.9 sec.	9.29	10.18	9.57	9.95	9.75
0 – 100	24.6 sec.	17.57	14.72	17.88	24.30	18.62

DISTANCE TO REACH 110 MPH: 9.66 miles

DISTANCE TO REACH 120 MPH: N/A

TOP SPEED ATTAINED: 110 mph

Harley-Davidson FLHTP (Electraglide)

BEGINNING TIME: 4:45 p.m.
WIND VELOCITY: 7.1 mph

TEMPERATURE: 63.8° F
WIND DIRECTION: 333°

SPEEDS	TIME REQUIREMENTS*	RUN 1	RUN 2	RUN 3	RUN 4	AVERAGE
0 – 60	9.0 sec.	5.29	5.63	5.51	5.70	5.53
0 – 80	14.9 sec.	9.36	9.88	9.39	9.67	9.58
0 – 100	24.6 sec.	17.72	20.17	18.50	22.00	19.60

DISTANCE TO REACH 110 MPH: N/A

DISTANCE TO REACH 120 MPH: N/A

TOP SPEED ATTAINED: 107 mph

*Michigan State Police minimum requirement.

Moto Guzzi California 1400 Touring ABS

BEGINNING TIME: 10:07 a.m.
 WIND VELOCITY: 6.4 mph

TEMPERATURE: 59.6° F
 WIND DIRECTION: 333°

SPEEDS	TIME REQUIREMENTS*	RUN 1	RUN 2	RUN 3	RUN 4	AVERAGE
0 – 60	9.0 sec.	5.48	5.70	5.35	5.50	5.51
0 – 80	14.9 sec.	9.10	9.35	8.88	8.94	9.07
0 – 100	24.6 sec.	15.54	14.62	15.37	16.28	15.45

DISTANCE TO REACH 110 MPH: .61 mile
 DISTANCE TO REACH 120 MPH: 4.96 miles

TOP SPEED ATTAINED: 122 mph

Moto Guzzi Norge 1200 ABS

BEGINNING TIME: 3:51 p.m.
 WIND VELOCITY: 6.8 mph

TEMPERATURE: 65.9° F
 WIND DIRECTION: 317°

SPEEDS	TIME REQUIREMENTS*	RUN 1	RUN 2	RUN 3	RUN 4	AVERAGE
0 – 60	9.0 sec.	4.60	4.50	4.57	4.54	4.55
0 – 80	14.9 sec.	7.31	7.41	7.38	7.43	7.38
0 – 100	24.6 sec.	11.43	11.97	11.44	12.27	11.78

DISTANCE TO REACH 110 MPH: .37 mile
 DISTANCE TO REACH 120 MPH: .72 mile

TOP SPEED ATTAINED: 129 mph

Victory Commander

BEGINNING TIME: 1:55 p.m.
 WIND VELOCITY: 8.2 mph

TEMPERATURE: 65.6° F
 WIND DIRECTION: 324°

SPEEDS	TIME REQUIREMENTS*	RUN 1	RUN 2	RUN 3	RUN 4	AVERAGE
0 – 60	9.0 sec.	5.25	5.31	5.19	5.49	5.31
0 – 80	14.9 sec.	9.22	9.27	8.95	9.32	9.19
0 – 100	24.6 sec.	16.73	14.46	15.80	16.98	15.99

DISTANCE TO REACH 110 MPH: 1.88 miles
 DISTANCE TO REACH 120 MPH: N/A

TOP SPEED ATTAINED: 115 mph

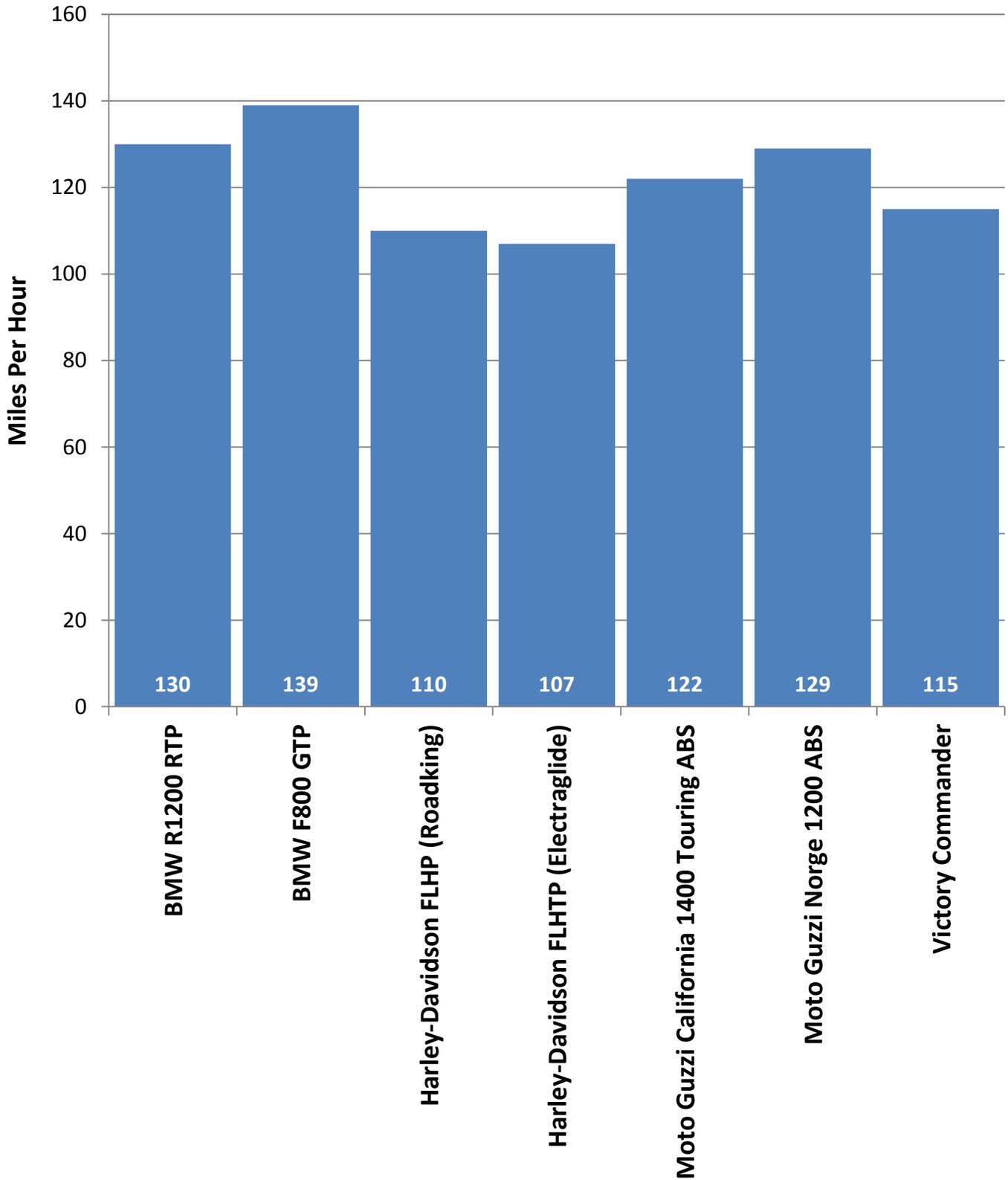
SUMMARY OF MOTORCYCLE ACCELERATION & TOP SPEED

	BMW R1200 RTP	BMW F800 GTP	Harley Davidson FLHP (Roadking)	Harley Davidson FLHTP (Electraglide)
0-20 mph (sec)	1.35	1.64	1.38	1.34
0-30 mph (sec)	1.93	2.43	2.15	2.09
0-40 mph (sec)	2.57	3.13	2.98	2.91
0-50 mph (sec)	3.54	3.85	4.13	4.09
0-60 mph (sec)	4.37	4.99	5.57	5.53
0-70 mph (sec)	5.54	6.04	7.30	7.23
0-80 mph (sec)	6.80	7.71	9.75	9.58
0-90 mph (sec)	8.60	9.64	13.17	13.09
0-100 mph (sec)	10.79	12.10	18.62	19.60
TOP SPEED (mph)	130 mph	139 mph	110 mph	107 mph
QUARTER MILE (sec)	12.86 seconds	13.62 seconds	14.45 seconds	14.39 seconds
SPEED (mph)	105.51 mph	104.18 mph	92.60 mph	92.01 mph

	Moto Guzzi California 1400 Touring ABS	Moto Guzzi Norge 1200 ABS	Victory Commander
0-20 mph (sec)	1.78	1.23	1.24
0-30 mph (sec)	2.51	2.03	1.89
0-40 mph (sec)	3.28	2.69	2.89
0-50 mph (sec)	4.42	3.68	3.84
0-60 mph (sec)	5.51	4.55	5.31
0-70 mph (sec)	7.12	5.81	7.07
0-80 mph (sec)	9.07	7.38	9.19
0-90 mph (sec)	11.67	9.08	12.34
0-100 mph (sec)	15.45	11.78	15.99
TOP SPEED (mph)	122 mph	129 mph	115 mph
QUARTER MILE (sec)	14.38 seconds	13.31 seconds	14.18 seconds
SPEED (mph)	95.66 mph	102.41 mph	93.66 mph

2014 Motorcycle Top Speed Comparison

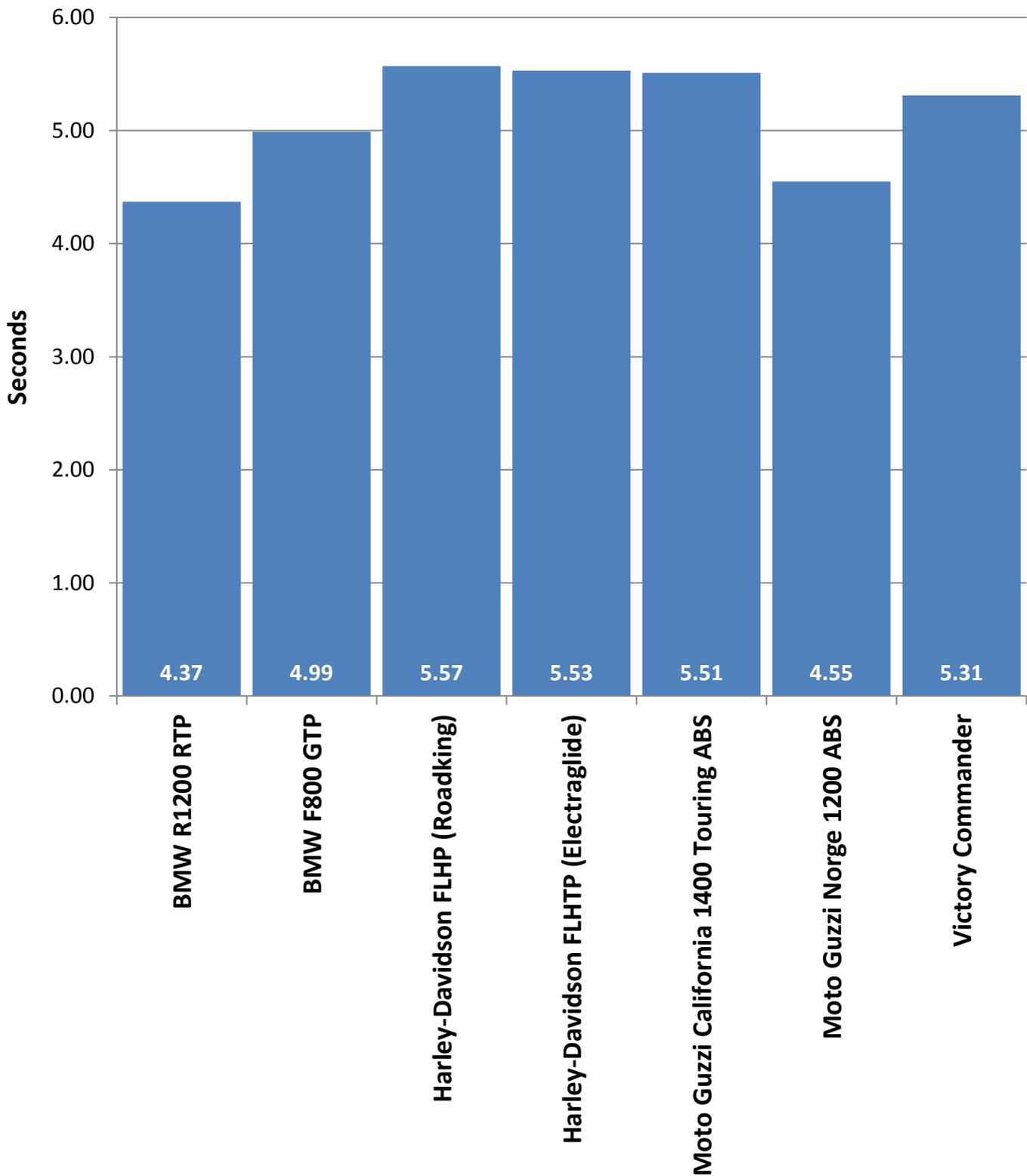
Top Speed Attained



2014 Motorcycle Acceleration Comparison

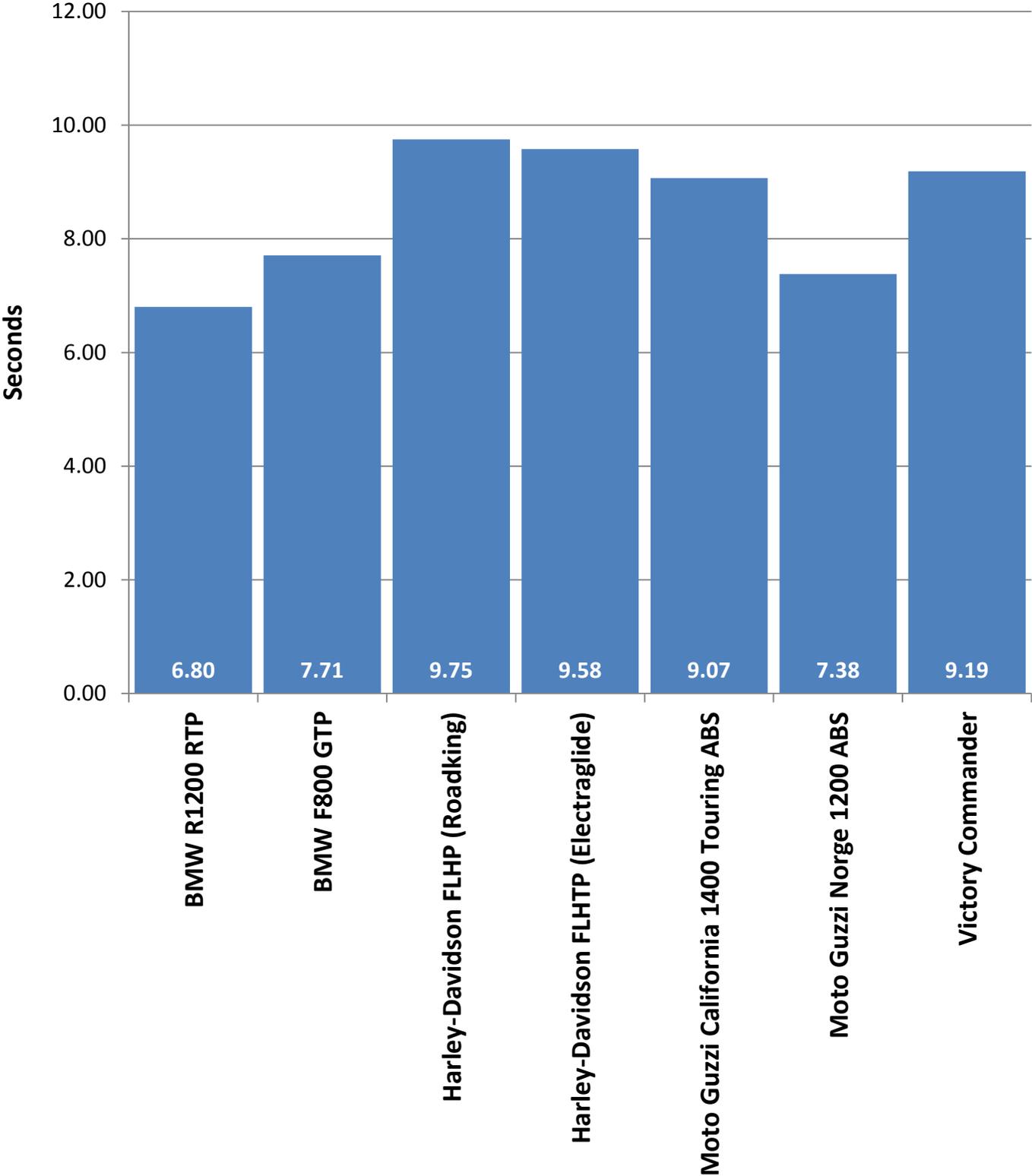
Acceleration Times

0-60 mph



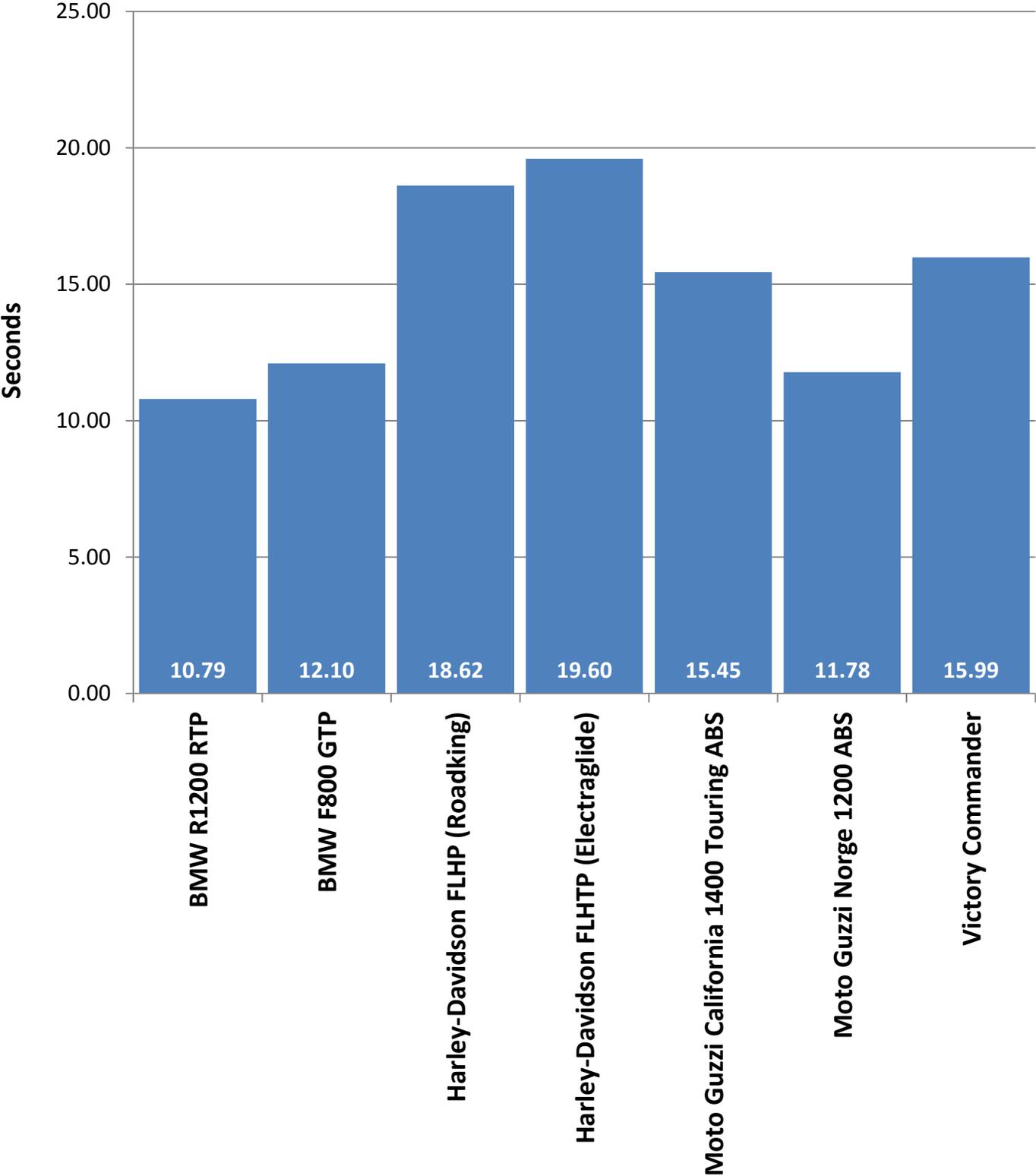
2014 Motorcycle Acceleration Comparison

Acceleration Times 0-80 mph



2014 Motorcycle Acceleration Comparison

Acceleration Times 0-100 mph



BRAKE TESTING

BRAKE TEST OBJECTIVE

To determine the deceleration rate attained by each test motorcycle on twenty 60 – 0 mph full ABS maximum deceleration panic stops. Each motorcycle will be scored on the average deceleration rate it attains.

BRAKE TEST METHODOLOGY

Each motorcycle makes ten measured 60 – 0 mph full ABS maximum deceleration panic stops, at specific predetermined points. After a one-mile lap to cool the brakes, the entire sequence is repeated. The exact initial velocity at the beginning of each of the 60 – 0 mph decelerations, and the exact distance required to make each stop, is recorded by means of a Kistler CDS-GPS CGPSLA 100 hz SP3 puck & logging unit. The data resulting from the twenty total stops is used to calculate the average deceleration rate which is the motorcycle's score for this test.

DECELERATION RATE FORMULA

$$\text{Deceleration Rate (DR)} = \frac{\text{Initial Velocity}^2 (\text{IV})^2}{2 \text{ times Stopping Distance (SD)}} = \frac{(\text{IV})^2}{2 (\text{SD})}$$

EXAMPLE:

$$\begin{aligned} \text{Initial Velocity} &= 89.175 \text{ ft/s (60.8 mph x 1.4667*)} \\ \text{Stopping Distance} &= 171.4 \text{ ft.} \end{aligned}$$

$$\text{DR} = \frac{(\text{IV})^2}{2(\text{SD})} = \frac{(89.175)^2}{2(171.4)} = \frac{7952.24}{342.8} = 23.198 \text{ ft/s}^2$$

Once a motorcycle's average deceleration rate has been determined, it is possible to calculate the stopping distance from any given speed by utilizing the following formula:

Select a speed; translate that speed into feet per second; square the feet per second figure by multiplying it by itself; divide the resultant figure by 2; divide the remaining figure by the average deceleration rate of the motorcycle in question.

EXAMPLE:

$$60 \text{ mph} = 88.002 \text{ ft/s} \times 88.002 = 7744.352 / 2 = 3872.176 / 23.198 \text{ ft/s}^2 = 166.9 \text{ ft.}$$



BRAKE TESTING

BMW R1200 RTP

TEST LOCATION: MSP Precision Drive Track	DATE: September 18, 2013	BEGINNING TIME: 11:40 a.m.
--	--------------------------	----------------------------

AIR TEMPERATURE: 69° F	TRACK SURFACE TEMPERATURE: 88° F
------------------------	----------------------------------

Phase I

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	60.95 mph	149.06 feet	26.81 ft/s ²
2	59.87 mph	135.95 feet	28.36 ft/s ²
3	60.43 mph	146.50 feet	26.81 ft/s ²
4	60.33 mph	139.00 feet	28.16 ft/s ²
5	59.68 mph	142.56 feet	26.87 ft/s ²
6	60.17 mph	132.73 feet	29.34 ft/s ²
7	59.88 mph	136.88 feet	28.17 ft/s ²
8	59.23 mph	140.83 feet	26.80 ft/s ²
9	59.37 mph	135.03 feet	28.08 ft/s ²
10	59.98 mph	132.39 feet	29.22 ft/s ²
AVERAGE DECELERATION RATE:			27.86 ft/s ²

(One cool down lap at 45 mph)

Phase II

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	59.99 mph	139.17 feet	27.82 ft/s ²
2	60.98 mph	147.77 feet	27.06 ft/s ²
3	60.67 mph	146.78 feet	26.97 ft/s ²
4	60.67 mph	138.62 feet	28.56 ft/s ²
5	60.59 mph	145.33 feet	27.17 ft/s ²
6	59.62 mph	131.20 feet	29.14 ft/s ²
7	60.35 mph	138.89 feet	28.21 ft/s ²
8	61.32 mph	144.17 feet	28.05 ft/s ²
9	59.15 mph	130.35 feet	28.87 ft/s ²
10	60.37 mph	140.44 feet	27.91 ft/s ²
AVERAGE DECELERATION RATE:			27.98 ft/s ²

Phase III

OVERALL AVERAGE DECELERATION RATE:	27.92 ft/s ²
------------------------------------	-------------------------

PROJECTED STOPPING DISTANCE FROM 60.0 mph:	138.7 feet
--	------------

Evidence of Severe Fading?	No
Motorcycle Stopped in Straight Line?	Yes
Motorcycle Stopped Within Correct Lane?	Yes

****All Motorcycles Tested are Equipped with Anti-Lock Brakes****

BRAKE TESTING

BMW F800 GTP

TEST LOCATION: MSP Precision Drive Track	DATE: September 18, 2013	BEGINNING TIME: 10:24 a.m.
--	--------------------------	----------------------------

AIR TEMPERATURE: 63° F	TRACK SURFACE TEMPERATURE: 74° F
------------------------	----------------------------------

Phase I

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	60.33 mph	129.71feet	30.19 ft/s ²
2	60.99 mph	131.63 feet	30.39 ft/s ²
3	60.10 mph	127.72 feet	30.42 ft/s ²
4	61.40 mph	135.31 feet	29.97 ft/s ²
5	60.80 mph	135.07 feet	29.44 ft/s ²
6	59.61 mph	126.36 feet	30.25 ft/s ²
7	61.55 mph	136.58 feet	29.83 ft/s ²
8	60.55 mph	124.81 feet	31.60 ft/s ²
9	61.32 mph	136.83 feet	29.55 ft/s ²
10	61.59 mph	135.58 feet	30.09 ft/s ²
AVERAGE DECELERATION RATE:			30.17 ft/s ²

(One cool down lap at 45 mph)

Phase II

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	60.14 mph	130.77 feet	29.75 ft/s ²
2	61.22 mph	126.90 feet	31.76 ft/s ²
3	60.46 mph	130.47 feet	30.14 ft/s ²
4	59.73 mph	123.57 feet	31.05 ft/s ²
5	60.26 mph	129.67 feet	30.12 ft/s ²
6	60.21 mph	127.06 feet	30.69 ft/s ²
7	61.52 mph	138.21 feet	29.46 ft/s ²
8	60.54 mph	130.60 feet	30.18 ft/s ²
9	60.31 mph	135.75 feet	28.82 ft/s ²
10	60.25 mph	131.84 feet	29.62 ft/s ²
AVERAGE DECELERATION RATE:			30.16 ft/s ²

Phase II

OVERALL AVERAGE DECELERATION RATE:	30.17 ft/s ²
------------------------------------	-------------------------

PROJECTED STOPPING DISTANCE FROM 60.0 mph:	128.3 feet
--	------------

Evidence of Severe Fading?	No
Motorcycle Stopped in Straight Line?	Yes
Motorcycle Stopped Within Correct Lane?	Yes

****All Motorcycles Tested are Equipped with Anti-Lock Brakes****

BRAKE TESTING

Harley Davidson FLHP (Roadking)

TEST LOCATION: MSP Precision Drive Track	DATE: September 18, 2013	BEGINNING TIME: 9:47 a.m.
---	---------------------------------	----------------------------------

AIR TEMPERATURE: 61° F	TRACK SURFACE TEMPERATURE: 70° F
-------------------------------	---

Phase I

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	58.77 mph	138.27 feet	26.87 ft/s ²
2	60.09 mph	148.13 feet	26.22 ft/s ²
3	59.90 mph	144.10 feet	26.78 ft/s ²
4	59.51 mph	143.65 feet	26.52 ft/s ²
5	59.39 mph	144.94 feet	26.17 ft/s ²
6	59.41 mph	140.58 feet	27.00 ft/s ²
7	59.46 mph	144.65 feet	26.28 ft/s ²
8	60.45 mph	147.81 feet	26.59 ft/s ²
9	59.64 mph	145.24 feet	26.34 ft/s ²
10	59.41 mph	141.22 feet	26.88 ft/s ²
AVERAGE DECELERATION RATE:			26.57 ft/s²

(One cool down lap at 45 mph)

Phase II

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	59.95 mph	145.26 feet	26.61 ft/s ²
2	59.46 mph	135.95 feet	27.97 ft/s ²
3	62.22 mph	154.90 feet	26.88 ft/s ²
4	58.94 mph	141.02 feet	26.50 ft/s ²
5	59.39 mph	139.11 feet	27.27 ft/s ²
6	60.10 mph	146.81 feet	26.47 ft/s ²
7	59.70 mph	145.48 feet	26.35 ft/s ²
8	60.79 mph	147.84 feet	26.88 ft/s ²
9	60.50 mph	146.94 feet	26.80 ft/s ²
10	60.19 mph	143.55 feet	27.15 ft/s ²
AVERAGE DECELERATION RATE:			26.89 ft/s²

Phase III

OVERALL AVERAGE DECELERATION RATE:	26.73 ft/s²
---	-------------------------------

PROJECTED STOPPING DISTANCE FROM 60.0 mph:	144.9 feet
---	-------------------

Evidence of Severe Fading?	No
Motorcycle Stopped in Straight Line?	Yes
Motorcycle Stopped Within Correct Lane?	Yes

****All Motorcycles Tested are Equipped with Anti-Lock Brakes****

BRAKE TESTING

Harley Davidson FLHTP (Electraglide)

TEST LOCATION: MSP Precision Drive Track	DATE: September 18, 2013	BEGINNING TIME: 12:46 p.m.
--	--------------------------	----------------------------

AIR TEMPERATURE: 72° F	TRACK SURFACE TEMPERATURE: 95° F
------------------------	----------------------------------

Phase I

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	60.56 mph	146.73 feet	26.88 ft/s ²
2	60.37 mph	142.92 feet	27.43 ft/s ²
3	59.60 mph	141.67 feet	26.97 ft/s ²
4	60.80 mph	149.86 feet	26.53 ft/s ²
5	59.50 mph	139.54 feet	27.29 ft/s ²
6	60.30 mph	141.17 feet	27.70 ft/s ²
7	60.50 mph	150.33 feet	26.19 ft/s ²
8	60.79 mph	142.79 feet	27.84 ft/s ²
9	59.49 mph	140.67 feet	27.06 ft/s ²
10	61.11 mph	145.35 feet	27.63 ft/s ²
AVERAGE DECELERATION RATE:			27.15 ft/s ²

(One cool down lap at 45 mph)

Phase II

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	60.32 mph	147.24 feet	26.58 ft/s ²
2	59.94 mph	143.58 feet	26.91 ft/s ²
3	60.92 mph	153.69 feet	25.98 ft/s ²
4	61.29 mph	145.99 feet	27.67 ft/s ²
5	59.95 mph	147.12 feet	26.28 ft/s ²
6	61.04 mph	151.37 feet	26.48 ft/s ²
7	59.73 mph	138.92 feet	27.62 ft/s ²
8	60.54 mph	147.82 feet	26.67 ft/s ²
9	60.69 mph	147.03 feet	26.94 ft/s ²
10	59.92 mph	140.09 feet	27.56 ft/s ²
AVERAGE DECELERATION RATE:			26.87 ft/s ²

Phase III

OVERALL AVERAGE DECELERATION RATE:	27.01 ft/s ²
------------------------------------	-------------------------

PROJECTED STOPPING DISTANCE FROM 60.0 mph:	143.4 feet
--	------------

Evidence of Severe Fading?	No
Motorcycle Stopped in Straight Line?	Yes
Motorcycle Stopped Within Correct Lane?	Yes

****All Motorcycles Tested are Equipped with Anti-Lock Brakes****

BRAKE TESTING

Moto Guzzi California 1400 Touring ABS

TEST LOCATION: MSP Precision Drive Track	DATE: September 18, 2013	BEGINNING TIME: 9:05 a.m.
---	---------------------------------	----------------------------------

AIR TEMPERATURE: 57° F	TRACK SURFACE TEMPERATURE: 64° F
-------------------------------	---

Phase I

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	59.66 mph	140.88 feet	27.17 ft/s ²
2	60.80 mph	137.06 feet	29.01 ft/s ²
3	60.39 mph	141.21 feet	27.78 ft/s ²
4	58.80 mph	132.85 feet	27.99 ft/s ²
5	59.96 mph	135.87 feet	28.46 ft/s ²
6	61.15 mph	139.34 feet	28.86 ft/s ²
7	59.37 mph	135.78 feet	27.92 ft/s ²
8	61.55 mph	138.30 feet	29.47 ft/s ²
9	60.18 mph	136.55 feet	28.52 ft/s ²
10	59.54 mph	127.35 feet	29.95 ft/s ²
AVERAGE DECELERATION RATE:			28.51 ft/s²

(One cool down lap at 45 mph)

Phase II

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	60.02 mph	132.38 feet	29.27 ft/s ²
2	60.65 mph	133.11 feet	29.72 ft/s ²
3	58.99 mph	120.83 feet	30.98 ft/s ²
4	60.06 mph	131.36 feet	29.53 ft/s ²
5	60.89 mph	133.28 feet	29.92 ft/s ²
6	60.86 mph	140.02 feet	28.45 ft/s ²
7	59.36 mph	125.45 feet	30.21 ft/s ²
8	59.83 mph	134.59 feet	28.61 ft/s ²
9	60.90 mph	131.92 feet	30.24 ft/s ²
10	59.58 mph	130.20 feet	29.32 ft/s ²
AVERAGE DECELERATION RATE:			29.63 ft/s²

Phase III

OVERALL AVERAGE DECELERATION RATE:	29.07 ft/s²
---	-------------------------------

PROJECTED STOPPING DISTANCE FROM 60.0 mph:	133.2 feet
---	-------------------

Evidence of Severe Fading?	No
Motorcycle Stopped in Straight Line?	Yes
Motorcycle Stopped Within Correct Lane?	Yes

****All Motorcycles Tested are Equipped with Anti-Lock Brakes****

BRAKE TESTING

Moto Guzzi Norge 1200 ABS

TEST LOCATION: MSP Precision Drive Track	DATE: September 18, 2013	BEGINNING TIME: 12:14 p.m.
--	--------------------------	----------------------------

AIR TEMPERATURE: 71° F	TRACK SURFACE TEMPERATURE: 92° F
------------------------	----------------------------------

Phase I

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	60.44 mph	131.34 feet	29.92 ft/s ²
2	61.22 mph	127.34 feet	31.66 ft/s ²
3	59.57 mph	129.22 feet	29.53 ft/s ²
4	61.08 mph	133.32 feet	30.09 ft/s ²
5	61.68 mph	135.76 feet	30.14 ft/s ²
6	59.93 mph	132.57 feet	29.14 ft/s ²
7	60.27 mph	132.57 feet	29.47 ft/s ²
8	60.56 mph	132.97 feet	29.67 ft/s ²
9	61.27 mph	137.81 feet	29.29 ft/s ²
10	60.05 mph	128.75 feet	30.12 ft/s ²
AVERAGE DECELERATION RATE:			29.90 ft/s²

(One cool down lap at 45 mph)

Phase II

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	60.62 mph	135.05 feet	29.27 ft/s ²
2	59.64 mph	132.06 feet	28.97 ft/s ²
3	60.74 mph	138.34 feet	28.68 ft/s ²
4	61.40 mph	136.66 feet	29.67 ft/s ²
5	60.63 mph	134.39 feet	29.42 ft/s ²
6	61.04 mph	132.26 feet	30.30 ft/s ²
7	58.49 mph	128.02 feet	28.74 ft/s ²
8	59.62 mph	130.81 feet	29.23 ft/s ²
9	61.87 mph	147.03 feet	28.00 ft/s ²
10	60.39 mph	132.03 feet	29.71 ft/s ²
AVERAGE DECELERATION RATE:			29.20 ft/s²

Phase III

OVERALL AVERAGE DECELERATION RATE:	29.55 ft/s²
---	-------------------------------

PROJECTED STOPPING DISTANCE FROM 60.0 mph:	131.0 feet
---	-------------------

Evidence of Severe Fading?	No
Motorcycle Stopped in Straight Line?	Yes
Motorcycle Stopped Within Correct Lane?	Yes

****All Motorcycles Tested are Equipped with Anti-Lock Brakes****

BRAKE TESTING

Victory Commander

TEST LOCATION: MSP Precision Drive Track	DATE: September 18, 2013	BEGINNING TIME: 10:56 a.m.
---	---------------------------------	-----------------------------------

AIR TEMPERATURE: 66° F	TRACK SURFACE TEMPERATURE: 83° F
-------------------------------	---

Phase I

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	60.79 mph	162.12 feet	24.52 ft/s ²
2	60.75 mph	156.47 feet	25.37 ft/s ²
3	60.41 mph	155.34 feet	25.27 ft/s ²
4	60.84 mph	154.34 feet	25.80 ft/s ²
5	60.81 mph	165.29 feet	24.06 ft/s ²
6	60.08 mph	161.14 feet	24.09 ft/s ²
7	59.86 mph	160.57 feet	24.00 ft/s ²
8	60.15 mph	162.79 feet	23.91 ft/s ²
9	60.79 mph	159.37 feet	24.94 ft/s ²
10	60.68 mph	169.11 feet	23.41 ft/s ²
AVERAGE DECELERATION RATE:			24.54 f/s²

(One cool down lap at 45 mph)

Phase II

(Ten 60 –0 mph full ABS maximum deceleration stops)

Stop #	Initial Velocity	Stopping Distance	Deceleration Rate
1	59.26 mph	158.46 feet	23.84 ft/s ²
2	58.90 mph	153.29 feet	24.34 ft/s ²
3	59.99 mph	164.75 feet	23.50 ft/s ²
4	60.39 mph	160.23 feet	24.48 ft/s ²
5	60.69 mph	165.98 feet	23.87 ft/s ²
6	61.09 mph	168.37 feet	23.84 ft/s ²
7	60.63 mph	166.36 feet	23.76 ft/s ²
8	60.28 mph	159.37 feet	24.52 ft/s ²
9	60.62 mph	171.55 feet	23.04 ft/s ²
10	60.60 mph	166.73 feet	23.69 ft/s ²
AVERAGE DECELERATION RATE:			23.89 ft/s²

Phase III

OVERALL AVERAGE DECELERATION RATE:	24.22 ft/s²
---	-------------------------------

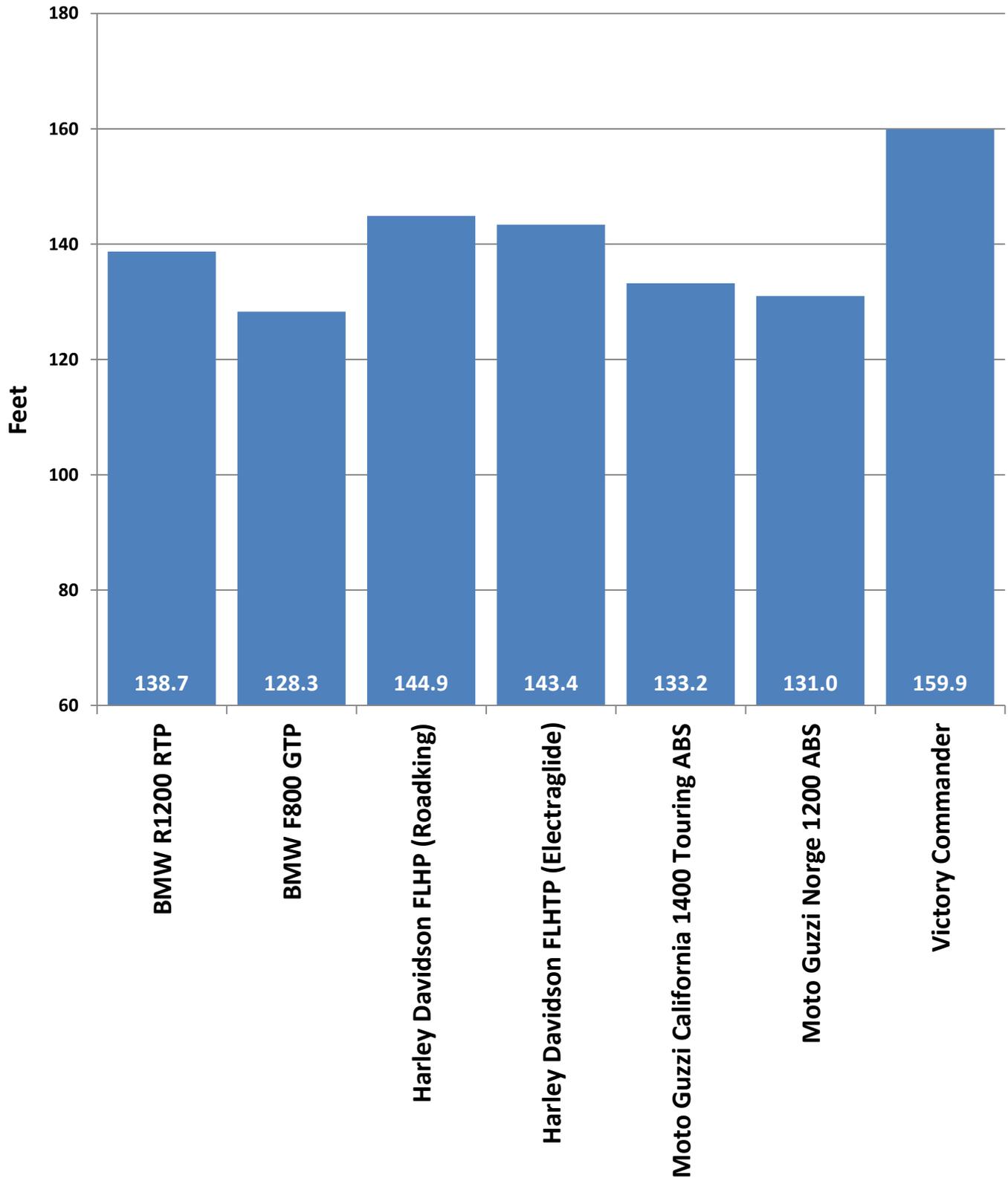
PROJECTED STOPPING DISTANCE FROM 60.0 mph:	159.9 feet
---	-------------------

Evidence of Severe Fading?	No
Motorcycle Stopped in Straight Line?	Yes
Motorcycle Stopped Within Correct Lane?	Yes

****All Motorcycles Tested are Equipped with Anti-Lock Brakes****

2014 Motorcycle Brake Testing

Projected Stopping Distance



For Your Information

About the National Institute of Justice

A component of the Office of Justice Programs, NIJ is the research, development and evaluation agency of the U.S. Department of Justice. NIJ's mission is to advance scientific research, development and evaluation to enhance the administration of justice and public safety. NIJ's principal authorities are derived from the Omnibus Crime Control and Safe Streets Act of 1968, as amended (see 42 USC §§ 3721–3723).

The NIJ Director is appointed by the President and confirmed by the Senate. The Director establishes the Institute's objectives, guided by the priorities of the Office of Justice Programs, the U.S. Department of Justice, and the needs of the field. The Institute actively solicits the views of criminal justice and other professionals and researchers to inform its search for the knowledge and tools to guide policy and practice.

Strategic Goals

NIJ has seven strategic goals grouped into three categories:

Creating relevant knowledge and tools

1. Partner with state and local practitioners and policymakers to identify social science research and technology needs.
2. Create scientific, relevant and reliable knowledge — with a particular emphasis on terrorism, violent crime, drugs and crime, cost-effectiveness and community-based efforts — to enhance the administration of justice and public safety.
3. Develop affordable and effective tools and technologies to enhance the administration of justice and public safety.

Dissemination

4. Disseminate relevant knowledge and information to practitioners and policymakers in an understandable, timely and concise manner.
5. Act as an honest broker to identify the information, tools and technologies that respond to the needs of stakeholders.

Agency management

6. Practice fairness and openness in the research and development process.
7. Ensure professionalism, excellence, accountability, cost-effectiveness and integrity in the management and conduct of NIJ activities and programs.

Program Areas

In addressing these strategic challenges, the Institute is involved in the following program areas: crime control and prevention, including policing; drugs and crime; justice systems and offender behavior, including corrections; violence and victimization; communications and information technologies; critical incident response; investigative and forensic sciences, including DNA; less lethal technologies; officer protection; education and training technologies; testing and standards; technology assistance to law enforcement and corrections agencies; field testing of promising programs; and international crime control.

In addition to sponsoring research and development and technology assistance, NIJ evaluates programs, policies and technologies. NIJ communicates its research and evaluation findings through conferences and print and electronic media.

About the Law Enforcement and Corrections Standards and Testing Program

The Law Enforcement and Corrections Standards and Testing Program is sponsored by the Office of Science and Technology of the National Institute of Justice (NIJ), Office of Justice Programs, U.S. Department of Justice. The program responds to the mandate of the Justice System Improvement Act of 1979, which directed NIJ to encourage research and development to improve the criminal justice system and to disseminate the results to federal, state and local agencies.

The Law Enforcement and Corrections Standards and Testing Program is an applied research effort that determines the technological needs of justice system agencies, sets minimum performance standards for specific devices, tests commercially available equipment against those standards, and disseminates the standards and the test results to criminal justice agencies nationwide and internationally.

The program operates through the following:

- The **Law Enforcement and Corrections Technology Advisory Council (LECTAC)**, consisting of nationally recognized criminal justice practitioners from federal, state and local agencies, assesses technological needs and sets priorities for research programs and items to be evaluated and tested.
- The **Office of Law Enforcement Standards (OLES)** at the National Institute of Standards and Technology develops voluntary national performance standards for compliance testing to ensure that individual items of equipment are suitable for use by criminal justice agencies. The equipment standards developed by OLES are based on laboratory evaluation of commercially available products in order to devise precise test methods that can be universally applied by any qualified testing laboratory and to establish minimum performance requirements for each attribute of a piece of equipment that is essential to how it functions. OLES-developed standards can serve as design criteria for manufacturers or as the basis for equipment evaluation. The application of the standards, which are highly technical in nature, is augmented through the publication of equipment performance reports and user guides. Individual jurisdictions may use the standards in their own laboratories to test equipment, have equipment tested on their behalf using the standards, or cite the standards in procurement specifications.
- The **National Law Enforcement and Corrections Technology Center (NLECTC)-National**, operated by a grantee, supervises a national compliance testing program conducted by independent laboratories. The standards developed by OLES serve as performance benchmarks against which commercial equipment is measured. In addition, NIJ has begun a new process for developing some standards using Special Technical Committees (STCs), which include practitioners, scientists and subject matter experts. OLES participates in the STC process. The facilities, personnel and testing capabilities of the independent laboratories are evaluated by OLES prior to testing each item of equipment. In addition, OLES helps NLECTC staff review and analyze data. Test results are published in consumer product reports designed to help justice system procurement officials make informed purchasing decisions.

Publications are available at no charge through NLECTC. Some documents are also available online through the Justice Technology Information Network (JUSTNET), the center's World Wide Web site. To request a document or additional information, call (800) 248-2742 or (301) 519-5069 or write:

National Law Enforcement and Corrections Technology Center-National

2277 Research Boulevard

Mail Stop 8J

Rockville, MD 20850

E-mail: asknlectc@nlectc.org

World Wide Web address: <http://www.justnet.org>

About the National Law Enforcement and Corrections Technology Center System

The National Law Enforcement and Corrections Technology Center (NLECTC) system recently completed a reorganization that will better enable the system to carry out its critical mission to assist state, major city and county, rural, tribal and border, as well as federal law enforcement, corrections and other criminal justice agencies in addressing their technology needs and challenges. Originally created in 1994 as a program of the National Institute of Justice's (NIJ's) Office of Science and Technology, the NLECTC system has realigned its outreach efforts into three new centers: the States, Major Cities and Counties Regional Center; the Small, Rural, Tribal and Border Regional Center; and the Alaska Regional Center.

The States, Major Cities and Counties Regional Center offers a resource and outreach mechanism for state, major city and county criminal justice system partners, with a mission of ensuring that larger criminal justice agencies (those having 50 or more sworn personnel) have unbiased access to a full range of relevant scientific and technology-related information. The Small, Rural, Tribal and Border Regional Center publicizes its programs and services to small, rural, tribal and border agencies across the country. The Alaska Regional Center serves as a conduit for agencies in Alaska.

The efforts of these centers complement those of NLECTC-National, which coordinates NIJ's Compliance Testing program and standards development efforts for a variety of equipment used in the public safety arena, and the Centers of Excellence (CoEs), which support NIJ's research, development, testing and evaluation (RDT&E) efforts in specific portfolio areas. The CoEs focus on the following topic areas: Communications Technologies; Electronic Crime Technology; Forensics Technology; Information and Sensor Systems; and Weapons and Protective Systems. The National Institute of Standards and Technology's Office of Law Enforcement Standards provides scientific and research support to these efforts.

As a whole, the NLECTC system provides:

- Scientific and technical support to NIJ's RDT&E projects.
- Support for the transfer and adoption of technology into practice by law enforcement and corrections agencies, courts and crime laboratories.
- Assistance in developing and disseminating equipment performance standards and technology guides.
- Assistance in the demonstration, testing and evaluation of criminal justice tools and technologies.
- Technology information and general and specialized technology assistance.
- Assistance in setting NIJ's research agenda by convening practitioner-based advisory groups to help identify criminal justice technology needs and gaps.

The NLECTC system supports NIJ's RDT&E process and goal of setting research priorities based on practitioner needs by sponsoring a series of [Technology Working Groups](#) and Constituent Advisory Groups, who provide input to the [Law Enforcement and Corrections Technology Advisory Council](#). Together, these groups form a bridge between the criminal justice community and the NIJ Office of Science and Technology.

For more information, call (800) 248-2742, e-mail asknlectc@nlectc.org or visit <http://www.justnet.org>.

About the Office of Law Enforcement Standards

The Office of Law Enforcement Standards (OLES) was established as a matrix management organization in 1971 through a Memorandum of Understanding between the U.S. Departments of Justice and Commerce based on the recommendations of the President's Commission on Crime. OLES' mission is to apply science and technology to the needs of the criminal justice community, including law enforcement, corrections, forensic science and the fire service. While its major objective is to develop minimum performance standards, which are promulgated as voluntary national standards, OLES also undertakes studies leading to the publication of technical reports and user guides.

The areas of research investigated by OLES include clothing, communication systems, emergency equipment, investigative aids, protective equipment, security systems, vehicles, weapons, and analytical techniques and standard reference materials used by the forensic science community. The composition of OLES' projects varies depending on priorities of the criminal justice community at any given time and, as necessary, draws on the resources of the National Institute of Standards and Technology.

OLES assists law enforcement and criminal justice agencies in acquiring, on a cost-effective basis, the high-quality resources they need to do their jobs. To accomplish this, OLES:

- Develops methods for testing equipment performance and examining evidentiary materials.
- Develops standards for equipment and operating procedures.
- Develops standard reference materials.
- Performs other scientific and engineering research as required.

Since the program began in 1971, OLES has coordinated the development of standards, user guides and advisory reports on topics that range from performance parameters of police patrol vehicles, to performance reports on various speed-measuring devices, to soft body armor testing, to analytical procedures for developing DNA profiles.

The application of technology to enhance the efficiency and effectiveness of the criminal justice community continues to increase. The proper adoption of the products resulting from emerging technologies and the assessment of equipment performance, systems, methodologies, etc., used by criminal justice practitioners constitute critical issues having safety and legal ramifications. The consequences of inadequate equipment performance or inadequate test methods can range from inconvenient to catastrophic. In addition, these deficiencies can adversely affect the general population when they increase public safety costs, preclude arrest or result in evidence found to be inadmissible in court.