
*Rollover Stability Measurements For
2021 New Car Assessment Program
(NCAP)*

Final Report

Contract:
693JJ919D000013

For:
National Highway Traffic Safety Administration

April 2022



7001 Buffalo Parkway
Columbus, Ohio 43229

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16. Abstract This report contains results from NCAP Static Stability Factor (SSF) measurements (including track width, center-of-gravity height, and SSF) made on 37 light duty vehicles. The vehicles tested were specified in contract Delivery Order 693JJ920F000201. Tests were conducted by SEA, Ltd. in Columbus, Ohio between 9/30/2020 and 2/22/2022, and included measurements made on one Model Year (MY) 2020 vehicle and 36 MY 2021 vehicles.			
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ROLLOVER STABILITY MEASUREMENTS FOR 2021 NEW CAR ASSESSMENT PROGRAM (NCAP)

Introduction

This report contains results from the measurements including track width and center-of-gravity (C.G.) height for 37 light duty vehicles under one loading condition: Driver Only. The relationship between the track width and C.G. height of a vehicle is a static metric that has been used for vehicle-to-vehicle comparison. The most common form, “ $T/2h$,” is computed as one-half the average track width ($T/2$) divided by the vehicle center-of-gravity height (h). In this report, the Static Stability Factor (SSF) is defined as $T/(2h)$ for the Driver Only loading condition. These measurements were performed for the National Highway Traffic Safety Administration's Office of Crash Avoidance Standards under contract 693JJ919D000013 (hereinafter referred to as “the Contract”). The particular make/models represent a subset of the vehicles in the 2021 National Highway Traffic Safety Administration (NHTSA) frontal and side impact New Car Assessment Program.

Discussion

Each of the vehicle models listed in Table I was secured in new or as-new condition. Prior to testing, each test vehicle's fuel tank was filled with gasoline, and its tires inflated to the vehicle manufacturer's recommended pressure. All tests are conducted with the Driver Only load: each test vehicle had an anthropomorphic test dummy placed in the driver seating position of the vehicle. In all tests, the driver was an un-instrumented "Hybrid II" anthropomorphic test dummy (weighing 163.0 lbs) which is representative in size, overall weight, and weight distribution of a 50th percentile human male. For Table I, all vehicles tested were MY2021, unless otherwise indicated. For example, the 2020 Tesla Model Y Long Range AWD was a MY2020 vehicle.

Table II lists the information recorded, measured, and computed for each vehicle. All of the information listed in Table II is provided in Appendix A. The information related to vehicle mass and center-of-gravity locations was obtained using SEA, Ltd.'s (S-E-A) Vehicle Inertia Measurement Facility (VIMF). The NHTSA document titled “Laboratory Test Procedure for Rollover Stability Measurement for New Car Assessment Program (NCAP) – Static Stability Factor (SSF) Measurement,” details the procedure for making the measurements [1]. Descriptions of the design and operation of the VIMF are provided in the papers listed in the references [2-3]. The VIMF method for measurement of C.G. height is consistent with ISO 10392 [4].

The track width measurements were made using the procedure detailed in the laboratory test procedure [1]. In summary, this is:

- Measure the track width with the vehicle in its driver only configuration.
- Make two Tire Edge Determination Tools as shown in Figure 1. These are modified 4-inch beams which, when placed on the floor and pushed against the tire, will define a longitudinal line on the inside or outside lower sidewall of the tire approximately 4 inches above the floor. Figure 2 shows the beams as used at S-E-A's VIMF.
- Place the beams on the right sides of both front tires and measure the separation of the beams below the front and rear edges of the tires. Repeat this with the beams on the left sides of the front tires for four measurements - the average of which is the front track width. An identical procedure is used for measuring the rear track width. Thus, a total of eight measurements are taken, the average of which is reported as the vehicle track width.

Figure 3 contains a sample results page from one of the vehicle tests, the 2021 Acura TLX FWD, in the "Driver Only" condition. The results pages contain all of the information in Table II, as well as additional information. The individual wheel weights, the four front track width measurements, the four rear track width measurements, and the left and right side wheelbase measurements are recorded on the test pages. Additionally, details specific to the VIMF measurements of C.G. Height are included. These are the Applied Weights (calibrated hanging weights used to tilt the VIMF platform in pitch during a VIMF C.G. Height test), the Platform Angle (resulting VIMF pitch angle), Relative Motion (relative longitudinal motion between the vehicle body and VIMF platform), and the resulting individual C.G. Height measurements.

The critical calculations listed on the pages are Average Track, Average C.G. Height, and T/2h. As mentioned, the Average Track is calculated from eight individual track width measurements, four for the front track and four for the rear track. Each of the eight measurements is made using a tape measure divided into tenths of an inch. The measurements are recorded to the nearest half division, which is 0.05 inches. The four front measurements are averaged using Microsoft Excel to compute the Front Track listed on the results sheets. Similarly, the four rear measurements are averaged to compute the Rear Track listed. The Average Track is the average of Front Track and Rear Track. Since no rounding takes place in the calculations of Front Track and Rear Track, the value computed for Average Track is the same as if all eight individual measurements were averaged. The individual measurements are listed on the results sheets using two decimal places. This is because the measurements are made to the nearest 0.05 inches. The Front Track, Rear Track, and Average Track calculations are listed using one decimal place. However, decimal places beyond the first are retained in Excel and used in the calculations for SSF. The Front Track, Rear Track, and Average Track width measurements are thought to be accurate to the nearest 0.1 inches. Based on a 60 inch Average Track and 0.1 inches measurement accuracy, the Average Track value listed is good to an accuracy of 0.17%. The resolution in the recorded value is 0.05 inches, which is one-half of the listed accuracy.

The Average C.G. Height listed is based on the average value calculation for the four individual C.G. Height tests (Runs #2-5 listed on the results pages). The VIMF software/database uses more than two decimal places in this calculation, and rounding to two decimal places is done for reporting purposes. The values listed on the sheets for Average C.G. Height are to the nearest 0.01 inches, with a resolution of 0.005 inches. Based on theoretical error analysis, on doing numerous

repeat testing of the same vehicles, and on numerous tests done using calibration fixtures; the accuracy of the VIMF is thought to be 0.5% or better. This means that for a 20 inch C.G. Height, the measured value is accurate to 0.1 inches, or better. Based on this fact and the significance of the VIMF measurement values that go into calculating C.G. Height, recording the Average C.G. Height using two decimal places is warranted.

As requested by NHTSA, the T/2h values are listed on the data sheets using four decimal places. The SSF, defined by NHTSA as the two decimal place value of the T/2h for the vehicle with a driver, is reported accordingly in the Summary Results Table, Appendix B.

Results

Results for all the values listed in Table II are summarized for all 37 vehicles tested in the spreadsheet contained in Appendix A.

Appendix B contains a one-page Summary Results Table containing all measured track widths, C.G. Heights, and SSF values using two decimal places.

Appendix C contains individual test results pages for all 37 tests.

Photos of the test vehicles (a side view and a $\frac{3}{4}$ front view) are provided in Appendix D.

Table I Test Vehicles			
Seq. No.	Vehicle Make/Model	Date Tested	VIMF Number
3	Acura TLX FWD	12/1/2020	7697
29	BMW 330i AWD	5/19/2021	7878
10	Buick Envision AWD	1/28/2021	7769
23	Buick Envision FWD	3/11/2021	7825
9	Chevrolet Tahoe 4WD	1/28/2021	7767
17	Chevrolet Tahoe 2WD	2/17/2021	7796
36	Ford Bronco 4WD	11/12/2021	8054
21	Ford Bronco Sport 4WD	2/24/2021	7805
27	Ford F-150 Crew Cab Hybrid 4X4	5/5/2021	7860
35	Ford F-150 Crew Cab Hybrid 4X2	9/10/2021	8016
28	Ford F-150 Extended Cab 4X4	5/12/2021	7866
33	Ford F-150 Extended Cab 4X2	8/19/2021	7987
34	Ford F-250 Tremor Crew Cab 4X4	8/27/2021	7996
16	Ford Mustang Mach-E BEV AWD	2/11/2021	7791
32	Ford Mustang Mach-E BEV RWD	8/18/2021	7985
24	Ford Transit 350HR AWD 15 Passenger	4/13/2021	7841
25	Ford Transit 350HR AWD 12 Passenger	4/14/2021	7844
11	Genesis G80 RWD	2/4/2021	7779
18	Genesis GV80 AWD	2/19/2021	7799
31	Genesis GV80 RWD	7/6/2021	7931
8	Hyundai Elantra FWD	1/26/2021	7761
1	Kia K5 FWD	9/30/2020	7658
6	Kia Sorento AWD	1/21/2021	7754
7	Kia Sorento FWD	1/21/2021	7756
14	Mercedes-Benz GLB 250 AWD	2/10/2021	7787
19	Mercedes-Benz GLB 250 FWD	2/23/2021	7801
15	Mercedes-Benz GLE 350 AWD	2/10/2021	7789
20	Mercedes-Benz GLE 350 RWD	2/23/2021	7803
12	Nissan Rogue AWD	2/4/2021	7781
13	Nissan Rogue FWD	2/5/2021	7784
2	2020 Tesla Model Y Long Range AWD	10/21/2020	7665
22	Tesla Model Y RWD	2/25/2021	7807
26	Toyota Prius Prime	4/15/2021	7845
4	Toyota Sienna Hybrid AWD	1/15/2021	7742
5	Toyota Sienna Hybrid FWD	1/15/2021	7744
37	Volkswagen ID.4 AWD	2/22/2022	8092
30	Volkswagen ID.4 RWD	6/15/2021	7907

Table II
Vehicle Information Contained in Results Spreadsheets

Seq. No.

Testing sequence number for current MY 2021 Contract

MY

Model Year (all test vehicles are model year 2020 or 2021)

Make

Vehicle Manufacturer

Model

Vehicle Model

Drive

FWD – Front Wheel Drive

RWD – Rear Wheel Drive

AWD – All Wheel Drive

4WD or 4X4 – Four Wheel Drive

4X2 – Two Wheel Drive

Type

Vehicle body style

VIN

17 Digit Vehicle Identification Number

Engine Size/Type

Vehicle engine size and type

Transmission Type

Vehicle transmission type

Doors

Number of doors

Significant Options

Optional equipment that may significantly affect the C.G. Height.

Shorthand notes: RR = Roof Rack, RB = Running Boards, SR = Sun Roof, MR = Moon Roof, PSR = Panoramic Sunroof, AS = Air Suspension.

Table II (continued)
Vehicle Information Contained in Results Spreadsheets

Front Tire Make/Type – Front Tire Size – Front Press.

Rear Tire Make/Type – Rear Tire Size – Rear Press.

These six columns contain information on the tires on the test vehicles. The tire size and type are specified, and the tire pressures are the vehicle manufacturer's specified tire pressures that were used during the tests.

Front Track – Rear Track – Average Track (T)

Front, rear and average track widths measured on test vehicles

Wheelbase

Average of measured left side wheelbase and right side wheelbase

GVWR, GAWR Front, GAWR Rear

Gross vehicle and axle weight ratings for the test vehicle

Load

Driver Only - described in the Discussion section on Page 1 of the report.

Test Date

Test date for the VIMF test

VIMF Test No.

VIMF test number

Roof Height

Measured height of test vehicle after loading – does not include roof rack (if applicable)

Test Weight

Measured weight of test vehicles

C.G. Longitudinal

Longitudinal distance from front wheel axis (axis through the centers of the front wheels) to vehicle center of gravity location

C.G. Lateral

Lateral distance from vehicle centerline to vehicle center of gravity location (negative to driver's side of vehicle)

C.G. Height (h)

Measured height of vehicle center of gravity

T/2h

(Average Track Width) / (2 x C.G. Height)

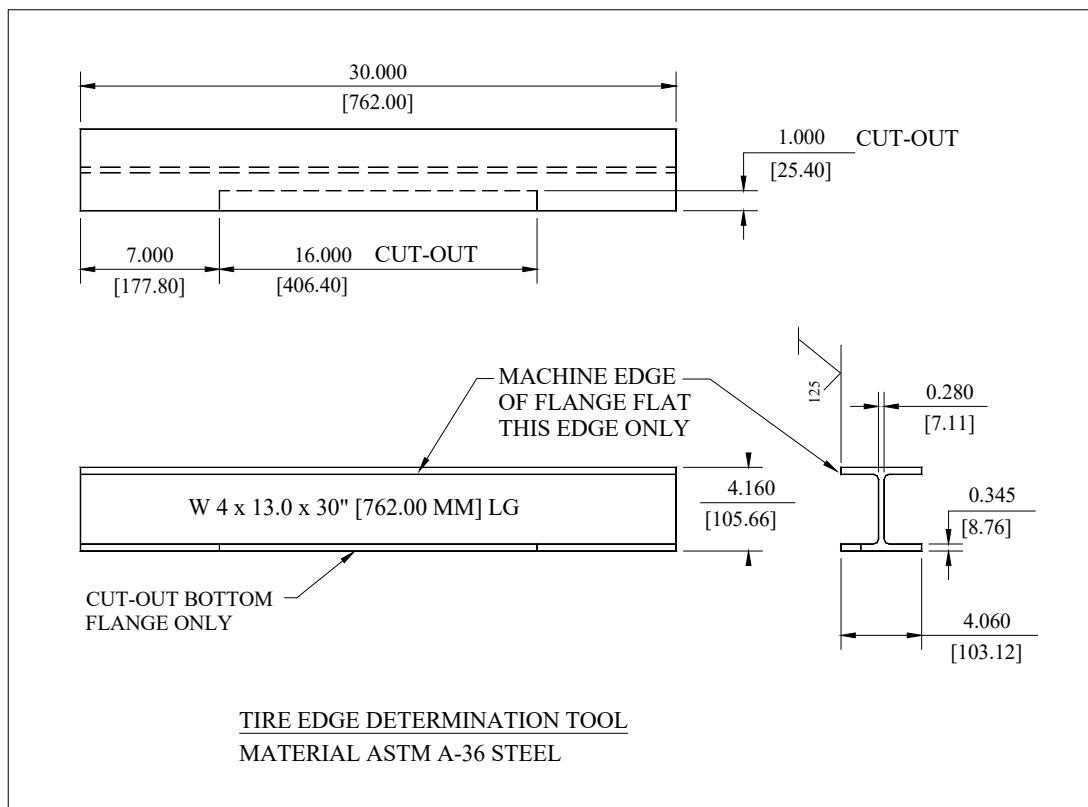


Figure 1: Tire Edge Determination Tool Used for Track Width Measurements



Figure 2: Measurements at S-E-A

Acura TLX FWD

YEAR: 2021 MAKE: Acura MODEL: TLX VIN: 19UUB5F32MA00#### TYPE: Sedan LOAD: Driver ENGINE SIZE AND TYPE: 2.0L I4 Turbo TRANSMISSION TYPE: 10AT DRIVE: FWD DOORS: 4 FUEL: Full OPTIONAL EQUIPMENT: Sunroof	DATE TESTED: 12/1/2020 VIMF TEST NO.: 7697 Mfg Date: 09/20 Ride Height: None
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FRONT TIRE TYPE: Bridgestone Turanza EL440 M+S FRONT TIRE SIZE: 235/50R18 97V FRONT TIRE PRESSURE: 32 REAR TIRE TYPE: Bridgestone Turanza EL440 M+S REAR TIRE SIZE: 235/50R18 97V REAR TIRE PRESSURE: 30	Track Width Measurements <table border="0" style="width: 100%;"> <tr> <td style="width: 10%;">Front A</td> <td style="width: 10%;">63.90</td> <td style="width: 10%;">inches</td> </tr> <tr> <td>B</td> <td>63.90</td> <td>inches</td> </tr> <tr> <td>C</td> <td>63.90</td> <td>inches</td> </tr> <tr> <td>D</td> <td>63.90</td> <td>inches</td> </tr> <tr> <td>Rear E</td> <td>64.40</td> <td>inches</td> </tr> <tr> <td>F</td> <td>64.40</td> <td>inches</td> </tr> <tr> <td>G</td> <td>64.40</td> <td>inches</td> </tr> <tr> <td>H</td> <td>64.40</td> <td>inches</td> </tr> </table> Wheelbase Measurements <table border="0" style="width: 100%;"> <tr> <td style="width: 10%;">Left Side</td> <td style="width: 10%;">112.85</td> <td style="width: 10%;">inches</td> </tr> <tr> <td>Right Side</td> <td>112.85</td> <td>inches</td> </tr> </table>	Front A	63.90	inches	B	63.90	inches	C	63.90	inches	D	63.90	inches	Rear E	64.40	inches	F	64.40	inches	G	64.40	inches	H	64.40	inches	Left Side	112.85	inches	Right Side	112.85	inches
Front A	63.90	inches																													
B	63.90	inches																													
C	63.90	inches																													
D	63.90	inches																													
Rear E	64.40	inches																													
F	64.40	inches																													
G	64.40	inches																													
H	64.40	inches																													
Left Side	112.85	inches																													
Right Side	112.85	inches																													

FRONT TRACK: 63.9 inches REAR TRACK: 64.4 inches AVERAGE TRACK: 64.2 inches WHEELBASE: 112.9 inches ROOF HEIGHT: 55.9 inches GVWR: 4806 lb FRONT GAWR: 2557 lb REAR GAWR: 2315 lb LEFT FRONT WEIGHT: 1184.0 lb RIGHT FRONT WEIGHT: 1088.8 lb LEFT REAR WEIGHT: 810.2 lb RIGHT REAR WEIGHT: 813.2 lb TOTAL WEIGHT: 3896.2 lb C.G. LONGITUDINAL: 47.02 inches (From Front Axle) C.G. LATERAL: -0.76 inches (Negative Towards Driver's Side)	
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VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	42.2	3.146	-0.021	21.20
Run #3	57.6	4.273	-0.030	21.18
Run #4	42.2	-3.116	0.017	21.14
Run #5	57.6	-4.254	0.026	21.21
AVERAGE C.G. HEIGHT				21.18

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.5142$$

Figure 3: Sample of Individual Test Results Page

References

- 1) *Laboratory Test Procedure for Rollover Stability Measurement for New Car Assessment Program (NCAP) – Static Stability Factor (SSF) Measurements*, U.S. Department of Transportation, National Highway Traffic Safety Administration, March 2013.
- 2) *The Design of a Vehicle Inertia Measurement Facility*, Heydinger, G.J., Durisek, N.J., Coover, D.A., Guenther, D.A., and Novak, S.J., SAE Paper No. 950309, February, 1995. Also presented and reprinted by invitation at the 1995 Society of Allied Weight Engineers (SAWE) International Conference, May, 1995.
- 3) *An Overview of a Vehicle Inertia Measurement Facility*, Heydinger, G.J., Durisek, N.J., Coover, D.A., Lawrence, R.D., Nowjack, J.A., and Guenther, D.A., 27th International Symposium on Automotive Technology and Automation, ISATA Paper 94SF034, October, 1994.
- 4) *Road Vehicles – Determination of Centre of Gravity*, ISO 10392, 2011.

Appendix A

Results Spreadsheets for all Tests

Seq No.	MY	Make	Model	Drive	Type	VIN	Engine Size/Type	Transmission Type	Doors	Significant Options
3	2021	Acura	TLX	FWD	Sedan	19UUB5F32MA0#####	2.0L I4 Turbo	10AT	4	SR
29	2021	BMW	330i	AWD	Sedan	3MW5R7J00M8B#####	2.0L I4 Twin Turbo	8AT	4	SR
10	2021	Buick	Envision	AWD	SUV	LRBFZPR41MD0#####	2.0L I4 Turbo	9AT	4	RR
23	2021	Buick	Envision	FWD	SUV	LRBFZNR41MD0#####	2.0L I4 Turbo	9AT	4	PSR, RR
9	2021	Chevrolet	Tahoe	4WD	SUV	1GNSKTKLXMR1#####	6.2L V8	10AT	4	PSR, RR, AS
17	2021	Chevrolet	Tahoe	RWD	SUV	1GNSCNKD5MR1#####	6.2L V8	10AT	4	RB, RR
36	2021	Ford	Bronco	4WD	SUV	1FMEE5DP0MLA#####	2.7L V6	10AT	4	
21	2021	Ford	Bronco Sport	4WD	SUV	3FMC9A68MRA#####	1.5L I4	8AT	4	RR
27	2021	Ford	F-150 Crew Cab	4X4	Pickup	1FTFW1ED2MFB#####	3.5L V6 Hybrid	10AT	4	Hitch
35	2021	Ford	F-150 Crew Cab	4X2	Pickup	1FTFW1CDXMF#####	3.5L V6 Hybrid	10AT	4	Hitch, RB
28	2021	Ford	F-150 Extended Cab	4X4	Pickup	1FTFX1E85MKD#####	3.5L V6	10AT	4	Hitch
33	2021	Ford	F-150 Extended Cab	4X2	Pickup	1FTEX1CB4MKE#####	3.5L V6	10AT	4	Hitch
34	2021	Ford	F-250 Tremor	4X4	Pickup Crew Cab	1FT7W2BNXME#####	7.3L V8	10AT	4	RB, PSR, Hitch
16	2021	Ford	Mustang Mach-E	AWD	Sedan	3FMTK3SU1MMA#####	Electric	Auto	4	PS
32	2021	Ford	Mustang Mach-E	RWD	SUV	3FMTK3RM4MMA#####	Electric	Auto	4	PS
24	2021	Ford	Transit 350HR	AWD	Van - 12 Pass	1FBAX9XG3MKA#####	3.5L V6	10AT	3	
25	2021	Ford	Transit 350HR	AWD	Van - 15 Pass	1FBVU5XG2MKA#####	3.5L V6	10AT	3	
11	2021	Genesis	G80	RWD	Sedan	KMTGB4SC5MU0#####	2.5L I4 Turbo	8AT	4	PSR
18	2021	Genesis	GV80	AWD	SUV	KMUHCESC3MU0#####	3.5L V6	8AT	4	PSR, RR
31	2021	Genesis	GV80	RWD	SUV	KMUHB4SB7MU0#####	2.5L I4	8AT	4	PSR
8	2021	Hyundai	Elantra	FWD	Sedan	KMHLN4AG5MU0#####	2.0L I4	CVT	4	SR
1	2021	Kia	K5 EX	FWD	Sedan	5XXG34J21MG0#####	1.6L I4 Turbo	8AT	4	PSR
6	2021	Kia	Sorento	AWD	SUV	5XYRGDLC3MG0#####	2.5L I4	8AT	4	
7	2021	Kia	Sorento	FWD	SUV	5XYRL4LC6MG0#####	2.5L I4	8AT	4	
14	2021	Mercedes-Benz	GLB 250	AWD	SUV	W1N4M4HB9MW0#####	2.0L I4 Turbo	8AT	4	PSR, RR
19	2021	Mercedes-Benz	GLB 250	FWD	SUV	W1N4M4GB2MW1#####	2.0L I4 Turbo	8DCT	4	PSR, RR
15	2021	Mercedes-Benz	GLE 350	AWD	SUV	4JGFB4KEXMA3#####	2.0L I4 Turbo	9AT	4	SR, RR, Hitch, RB
20	2021	Mercedes-Benz	GLE 350	RWD	SUV	4JGFB4JB7MA3#####	2.0L I4 Turbo	9AT	4	SR, RR, Hitch
12	2021	Nissan	Rogue	AWD	SUV	JN8AT3BB4MW2#####	2.5L I4	CVT	4	
13	2021	Nissan	Rogue	FWD	SUV	5N1AT3BA2MC7#####	2.5L I4	CVT	4	
2	2020	Tesla	Model Y Long Range	AWD	SUV	5YJGDEF7LF0#####	Electric	Auto	4	
22	2021	Tesla	Model Y	RWD	SUV	5YJYGDED6MF1#####	Electric	Auto	4	
26	2021	Toyota	Prius Prime	FWD	Sedan	JTDKAMFP6M31#####	1.8L I4 Hybrid	Auto	4	
4	2021	Toyota	Sienna	AWD	Van	5TDYSKFC5MS0#####	2.5L I4 Hybrid	CVT	4	SR
5	2021	Toyota	Sienna	FWD	Van	5TDDRKEC2MS0#####	2.5L I4 Hybrid	CVT	4	SR
37	2021	Volkswagen	ID.4	AWD	SUV	WVGJNPE23MP0#####	Electric	Auto	4	Hitch
30	2021	Volkswagen	ID.4	RWD	SUV	WVGRMPE23MP0#####	Electric	Auto	4	

Seq No.	MY	Make	Model	Drive	Front Tire Make/Type	Front Tire Size	Front Press. (psi)
3	2021	Acura	TLX	FWD	Bridgestone Turanza EL440 M+S	235/50R18 97V	32
29	2021	BMW	330i	AWD	Bridgestone Turanza LS100A M+S	225/45R18 95H	32
10	2021	Buick	Envision	AWD	Continental Pro Contact TX M+S	235/60R18 103H	35
23	2021	Buick	Envision	FWD	Continental Pro Contact M+S	245/45R20 99H	36
9	2021	Chevrolet	Tahoe	4WD	Bridgestone Alenza A/S M+S	275/50R22 111H	36
17	2021	Chevrolet	Tahoe	RWD	Michelin Primacy LTX M+S	265/65R18 114T	35
36	2021	Ford	Bronco	4WD	Goodyear Territory MT M+S	LT315/70R17C 113/110S	39
21	2021	Ford	Bronco Sport	4WD	Continental Pro Contact M+S	225/65R17 102H	33
27	2021	Ford	F-150 Crew Cab	4X4	General Grabber APT M+S	LT265/70R18 113/110S	41
35	2021	Ford	F-150 Crew Cab	4X2	Goodyear Wrangler Territory HT M+S	275/60R20 115T	35
28	2021	Ford	F-150 Extended Cab	4X4	Pirelli Scorpion ATR M+S	265/70R17 115T	35
33	2021	Ford	F-150 Extended Cab	4X2	Michelin Primacy LTX M+S	245/70R17 110T	36
34	2021	Ford	F-250 Tremor	4X4	Goodyear Wrangler Duratrac M+S	LT285/75R18 129/126Q	60
16	2021	Ford	Mustang Mach-E	AWD	Michelin Primacy A/S M+S	225/55R19 103H	39
32	2021	Ford	Mustang Mach-E	RWD	Michelin Primacy A/S M+S	225/55R19 103H	39
24	2021	Ford	Transit 350HR	AWD	Continental VanContact A/S M+S	235/65R16C 121/119R	57
25	2021	Ford	Transit 350HR	AWD	Hankook Dynapro HT M+S	205/75R16C 113/111R	70
11	2021	Genesis	G80	RWD	Michelin Primacy Tour A/S M+S	245/45R19 102W	36
18	2021	Genesis	GV80	AWD	Michelin Primacy Tour M+S	265/50R20 111W	33
31	2021	Genesis	GV80	RWD	Pirelli Scorpion Zero M+S	265/55R19 103W	33
8	2021	Hyundai	Elantra	FWD	Kumho Majesty Solus M+S	225/45R17 91W	34
1	2021	Kia	K5 EX	FWD	Pirelli Pzero All Season M+S	235/45R18 94V	35
6	2021	Kia	Sorento	AWD	Continental Cross Contact LX Sport M+S	235/65R17 104H	35
7	2021	Kia	Sorento	FWD	Continental Cross Contact LX Sport M+S	235/60R18 103H	35
14	2021	Mercedes-Benz	GLB 250	AWD	Pirelli Scorpion Zero All Season M+S	235/55R18 100H	43
19	2021	Mercedes-Benz	GLB 250	FWD	Continental Pro Contact GX SSR M+S	235/50R19 99H	43
15	2021	Mercedes-Benz	GLE 350	AWD	Bridgestone Alenza Sport A/S	275/50R20 113H	38
20	2021	Mercedes-Benz	GLE 350	RWD	Michelin Primacy Tour M+S	275/45R21 107H	31
12	2021	Nissan	Rogue	AWD	Bridgestone Alenza Sport A/S	235/60R18 103H	33
13	2021	Nissan	Rogue	FWD	Falken Ziex ZE001A A/S M+S	235/60R18 103H	33
2	2020	Tesla	Model Y Long Range	AWD	Pirelli Pzero Elect	255/35R21 98W	42
22	2021	Tesla	Model Y	RWD	Continental Pro Contact Rx M+S	255/45R19 104W	42
26	2021	Toyota	Prius Prime	FWD	Toyo NanoEnergy A41 M+S	195/65R15 91S	36
4	2021	Toyota	Sienna	AWD	Falken Ziex ZE001A A/S M+S	P235/65R17 103T	35
5	2021	Toyota	Sienna	FWD	Michelin Primacy A/S M+S	235/50R20 100V	36
37	2021	Volkswagen	ID.4	AWD	Hankook Kinergy AS X EV M+S	235/55R19 105T	44
30	2021	Volkswagen	ID.4	RWD	Hankook Kinergy AS X	235/55R19 105T	42

Seq No.	MY	Make	Model	Drive	Rear Tire Make/Type	Rear Tire Size	Rear Press. (psi)	Front Track (in)	Rear Track (in)	Avg. Track (in)	Wheel Base (in)
3	2021	Acura	TLX	FWD	Bridgestone Turanza EL440 M+S	235/50R18 97V	30	63.9	64.4	64.2	112.9
29	2021	BMW	330i	AWD	Bridgestone Turanza LS100A M+S	225/45R18 95H	39	62.1	62.7	62.4	112.2
10	2021	Buick	Envision	AWD	Continental Pro Contact TX M+S	235/60R18 103H	35	63.3	63.4	63.3	109.7
23	2021	Buick	Envision	FWD	Continental Pro Contact M+S	245/45R20 99H	36	63.3	63.3	63.3	109.5
9	2021	Chevrolet	Tahoe	4WD	Bridgestone Alenza A/S M+S	275/50R22 111H	36	68.5	68.3	68.4	120.8
17	2021	Chevrolet	Tahoe	RWD	Michelin Primacy LTX M+S	265/65R18 114T	35	68.8	68.6	68.7	120.7
36	2021	Ford	Bronco	4WD	Goodyear Territory MT M+S	LT315/70R17C 113/110S	39	66.9	67.1	67.0	116.5
21	2021	Ford	Bronco Sport	4WD	Continental Pro Contact M+S	225/65R17 102H	33	63.7	63.1	63.4	105.1
27	2021	Ford	F-150 Crew Cab	4X4	General Grabber APT M+S	LT265/70R18 113/110S	41	68.1	68.4	68.2	146.1
35	2021	Ford	F-150 Crew Cab	4X2	Goodyear Wrangler Territory HT M+S	275/60R20 115T	35	68.1	68.4	68.3	145.9
28	2021	Ford	F-150 Extended Cab	4X4	Pirelli Scorpion ATR M+S	265/70R17 115T	35	68.1	68.5	68.3	145.9
33	2021	Ford	F-150 Extended Cab	4X2	Michelin Primacy LTX M+S	245/70R17 110T	36	68.2	68.5	68.3	145.9
34	2021	Ford	F-250 Tremor	4X4	Goodyear Wrangler Duratrac M+S	LT285/75R18 129/126Q	80	68.5	67.3	67.9	160.5
16	2021	Ford	Mustang Mach-E	AWD	Michelin Primacy A/S M+S	225/55R19 103H	39	63.6	63.9	63.7	117.5
32	2021	Ford	Mustang Mach-E	RWD	Michelin Primacy A/S M+S	225/55R19 103H	39	63.7	63.8	63.7	117.6
24	2021	Ford	Transit 350HR	AWD	Continental VanContact A/S M+S	235/65R16C 121/119R	75	68.3	69.7	69.0	147.9
25	2021	Ford	Transit 350HR	AWD	Hankook Dynapro HT M+S	255/55R16C 113/111R Dual	55	68.6	77.0	72.8	147.8
11	2021	Genesis	G80	RWD	Michelin Primacy Tour A/S M+S	275/40R19 105W	36	64.2	64.3	64.2	118.5
18	2021	Genesis	GV80	RWD	Michelin Primacy Tour M+S	265/50R20 111W	36	66.6	66.4	66.5	116.5
31	2021	Genesis	GV80	RWD	Pirelli Scorpion Zero M+S	265/55R19 103W	36	65.9	66.5	66.2	116.4
8	2021	Hyundai	Elantra	FWD	Kumho Majesty Solus M+S	225/45R17 91W	31	62.2	62.4	62.3	107.2
1	2021	Kia	K5 EX	FWD	Pirelli Pzero All Season M+S	235/45R18 94V	35	63.6	63.9	63.7	112.4
6	2021	Kia	Sorento	AWD	Continental Cross Contact LX Sport M+S	235/65R17 104H	35	65.0	65.4	65.2	111.1
7	2021	Kia	Sorento	FWD	Continental Cross Contact LX Sport M+S	235/60R18 103H	35	64.8	65.2	65.0	111.1
14	2021	Mercedes-Benz	GLB 250	AWD	Pirelli Scorpion Zero All Season M+S	235/55R18 100H	43	62.4	62.6	62.5	111.3
19	2021	Mercedes-Benz	GLB 250	FWD	Continental Pro Contact GX SSR M+S	235/50R19 99H	43	62.4	62.4	62.4	111.4
15	2021	Mercedes-Benz	GLE 350	AWD	Bridgestone Alenza Sport A/S	275/50R20 113H	44	66.0	67.8	66.9	117.9
20	2021	Mercedes-Benz	GLE 350	RWD	Michelin Primacy Tour M+S	315/40R21 111H	31	66.2	67.2	66.7	117.9
12	2021	Nissan	Rogue	AWD	Bridgestone Alenza Sport A/S	235/60R18 103H	30	62.2	62.4	62.3	106.4
13	2021	Nissan	Rogue	FWD	Falken ZieX ZE001A A/S M+S	235/60R18 103H	30	62.3	62.4	62.4	106.4
2	2020	Tesla	Model Y Long Range	AWD	Pirelli Pzero Elect	275/35R21 103W	42	65.3	64.6	64.9	113.8
22	2021	Tesla	Model Y	RWD	Continental Pro Contact Rx M+S	255/45R19 104W	42	64.7	64.8	64.8	113.9
26	2021	Toyota	Prius Prime	FWD	Toyo NanoEnergy A41 M+S	195/65R15 91S	35	60.3	60.6	60.5	106.6
4	2021	Toyota	Sienna	AWD	Falken ZieX ZE001A A/S M+S	P235/65R17 103T	35	68.0	68.0	68.0	120.8
5	2021	Toyota	Sienna	FWD	Michelin Primacy A/S M+S	235/50R20 100V	36	68.2	68.2	68.2	120.8
37	2021	Volkswagen	ID.4	AWD	Hankook Kinergy AS X EV M+S	255/50R19 107T	44	62.3	61.3	61.8	108.9
30	2021	Volkswagen	ID.4	RWD	Hankook Kinergy AS X	255/50R19 107T	42	62.2	61.8	62.0	109.1

Seq No.	MY	Make	Model	Drive	GVWR (lb)	GAWR Front (lb)	GAWR Rear (lb)	Load	Test Date	VIMF Test No.	Roof Height (in)	Test Weight (lb)	C.G. Long. (in)	C.G. Lateral (in)	C.G. Height (in)	T/2h
3	2021	Acura	TLX	FWD	4806	2557	2315	Driver	12/1/2020	7697	55.9	3896.2	47.0	-0.8	21.18	1.5142
29	2021	BMW	330i	AWD	4773	2326	2601	Driver	5/19/2021	7878	56.5	3813.3	53.9	-0.5	20.83	1.4980
10	2021	Buick	Envision	AWD	5180	2799	2700	Driver	1/28/2021	7769	64.1	4070.9	45.2	-1.1	24.76	1.2784
23	2021	Buick	Envision	FWD	5070	2645	2535	Driver	3/11/2021	7825	63.9	3980.9	44.9	-1.0	25.77	1.2281
9	2021	Chevrolet	Tahoe	4WD	7500	3700	4300	Driver	1/28/2021	7767	75.9	6132.5	59.5	-0.6	29.84	1.1462
17	2021	Chevrolet	Tahoe	RWD	7400	3500	4300	Driver	2/17/2021	7796	75.3	5661.2	60.5	-0.5	29.58	1.1609
36	2021	Ford	Bronco	4WD	6160	3220	3070	Driver	11/12/2021	8054	75.5	5227.5	50.9	-0.5	30.07	1.1133
21	2021	Ford	Bronco Sport	4WD	4630	2400	2350	Driver	2/24/2021	7805	68.8	3624.9	44.9	-1.2	26.04	1.2171
27	2021	Ford	F-150 Crew Cab	4X4	7350	3900	4150	Driver	5/5/2021	7860	76.2	6069.6	62.2	-0.4	28.30	1.2049
35	2021	Ford	F-150 Crew Cab	4X2	7350	3600	4150	Driver	9/10/2021	8016	75.2	5717.9	63.5	-0.3	28.13	1.2132
28	2021	Ford	F-150 Extended Cab	4X4	7050	3450	3800	Driver	5/12/2021	7866	75.8	5070.3	57.8	-0.7	28.58	1.1946
33	2021	Ford	F-150 Extended Cab	4X2	6250	3000	3400	Driver	8/19/2021	7987	73.5	4762.7	62.6	-0.5	27.57	1.2391
34	2021	Ford	F-250 Tremor	4X4	10000	4800	6340	Driver	8/27/2021	7996	82.8	7264.0	66.8	-0.9	31.97	1.0620
16	2021	Ford	Mustang Mach-E	AWD	5800	2660	3225	Driver	2/11/2021	7791	62.4	5005.0	60.1	-0.7	20.70	1.5390
32	2021	Ford	Mustang Mach-E	RWD	5340	2420	3040	Driver	8/18/2021	7985	62.3	4569.5	61.1	-0.7	21.47	1.4838
24	2021	Ford	Transit 350HR	AWD	9250	4465	5780	Driver	4/14/2021	7844	106.2	6898.9	69.2	-0.3	34.15	1.0095
25	2021	Ford	Transit 350HR	AWD	10360	4465	6725	Driver	4/13/2021	7841	107.1	7556.5	79.3	-0.2	35.06	1.0381
11	2021	Genesis	G80	RWD	5104	2866	3097	Driver	2/4/2021	7779	57.8	4298.8	57.9	-0.7	22.08	1.4546
18	2021	Genesis	GV80	AWD	6108	3064	3274	Driver	2/19/2021	7799	67.2	5149.8	56.5	-0.6	26.40	1.2595
31	2021	Genesis	GV80	RWD	5777	3064	3274	Driver	7/6/2021	7931	67.4	4793.0	59.1	-0.7	26.79	1.2348
8	2021	Hyundai	Elantra	FWD	3858	2271	2094	Driver	1/26/2021	7761	55.4	3048.7	42.5	-0.9	21.53	1.4471
1	2021	Kia	K5 EX	FWD	4354	2513	2513	Driver	9/30/2020	7658	56.7	3477.6	45.6	-0.7	22.49	1.4165
6	2021	Kia	Sorento	AWD	5467	2866	2976	Driver	1/21/2021	7756	67.3	4014.9	49.1	-1.1	26.17	1.2451
7	2021	Kia	Sorento	FWD	5357	2866	2976	Driver	1/21/2021	7754	66.7	3946.9	48.6	-1.1	25.98	1.2504
14	2021	Mercedes-Benz	GLB 250	AWD	4861	2568	2403	Driver	2/10/2021	7787	65.7	4008.7	47.4	-1.0	25.04	1.2481
19	2021	Mercedes-Benz	GLB 250	FWD	5126	2535	2635	Driver	2/23/2021	7801	66.1	4009.0	48.0	-0.9	25.73	1.2126
15	2021	Mercedes-Benz	GLE 350	AWD	6437	3020	3638	Driver	2/10/2021	7789	70.2	5145.0	57.7	-1.0	26.59	1.2583
20	2021	Mercedes-Benz	GLE 350	RWD	6063	2866	3417	Driver	2/23/2021	7803	70.2	4898.3	58.1	-1.0	27.19	1.2258
12	2021	Nissan	Rogue	AWD	4619	2403	2326	Driver	2/4/2021	7781	66.3	3712.3	44.8	-1.0	25.76	1.2098
13	2021	Nissan	Rogue	FWD	4486	2359	2238	Driver	2/5/2021	7784	66.0	3606.6	44.0	-1.0	25.80	1.2086
2	2020	Tesla	Model Y Long Range	AWD	5302	3004	3505	Driver	10/21/2020	7665	63.1	4593.1	57.3	-0.4	20.45	1.5871
22	2021	Tesla	Model Y	RWD	4779	3004	3606	Driver	2/25/2021	7807	63.4	4083.2	61.4	-0.5	21.97	1.4740
26	2021	Toyota	Prius Prime	FWD	4255	2330	2240	Driver	4/15/2021	7845	57.0	3603.5	47.5	-1.3	21.30	1.4198
4	2021	Toyota	Sienna	AWD	6170	3505	3505	Driver	1/15/2021	7742	68.2	4896.2	55.7	-0.8	25.31	1.3435
5	2021	Toyota	Sienna	FWD	6170	3505	3505	Driver	1/15/2021	7744	68.5	4839.5	54.1	-0.9	26.15	1.3038
37	2021	Volkswagen	ID.4	AWD	5864	2646	3329	Driver	2/22/2022	8092	63.8	4973.3	55.8	-0.5	21.84	1.4139
30	2021	Volkswagen	ID.4	RWD	5644	2491	3263	Driver	6/15/2021	7907	63.1	4750.6	57.2	-0.6	21.48	1.4426

Appendix B

Summary Results Table with Track Width, CG Height, and SSF

Table I
Test Vehicles

Seq. No.	Vehicle Make/Model	Date Tested	VIMF Number	Track Width (inches)	DRIVER ONLY	
					C.G. Height (inches)	SSF
3	Acura TLX FWD	12/1/2020	7697	64.2	21.18	1.51
29	BMW 330i AWD	5/19/2021	7878	62.4	20.83	1.50
10	Buick Envision AWD	1/28/2021	7769	63.3	24.76	1.28
23	Buick Envision FWD	3/11/2021	7825	63.3	25.77	1.23
9	Chevrolet Tahoe 4WD	1/28/2021	7767	68.4	29.84	1.15
17	Chevrolet Tahoe 2WD	2/17/2021	7796	68.7	29.58	1.16
36	Ford Bronco 4WD	11/12/2021	8054	66.9	30.07	1.11
21	Ford Bronco Sport 4WD	2/24/2021	7805	63.4	26.04	1.22
27	Ford F-150 Crew Cab Hybrid 4X4	5/5/2021	7860	68.2	28.30	1.20
35	Ford F-150 Crew Cab Hybrid 4X2	9/10/2021	8016	68.3	28.13	1.21
28	Ford F-150 Extended Cab 4X4	5/12/2021	7866	68.3	28.58	1.19
33	Ford F-150 Extended Cab 4X2	8/19/2021	7987	68.3	27.57	1.24
34	Ford F-250 Tremor Crew Cab 4X4	8/27/2021	7996	67.9	31.97	1.06
16	Ford Mustang Mach-E BEV AWD	2/11/2021	7791	63.7	20.70	1.54
32	Ford Mustang Mach-E BEV RWD	8/18/2021	7985	63.7	21.47	1.48
24	Ford Transit 350HR 15 Passenger AWD	4/13/2021	7841	72.8	35.06	1.04
25	Ford Transit 350HR 12 Passenger AWD	4/14/2021	7844	69.0	34.15	1.01
11	Genesis G80 RWD	2/4/2021	7779	64.2	22.08	1.45
18	Genesis GV80 AWD	2/19/2021	7799	66.5	26.40	1.26
31	Genesis GV80 RWD	7/6/2021	7931	66.2	26.79	1.23
8	Hyundai Elantra FWD	1/26/2021	7761	62.3	21.53	1.45
1	Kia K5 FWD	9/30/2020	7658	63.7	22.49	1.42
6	Kia Sorento AWD	1/21/2021	7754	65.0	25.98	1.25
7	Kia Sorento FWD	1/21/2021	7756	65.2	26.17	1.25
14	Mercedes-Benz GLB 250 AWD	2/10/2021	7787	62.5	25.04	1.25
19	Mercedes-Benz GLB 250 FWD	2/23/2021	7801	62.4	25.73	1.21
15	Mercedes-Benz GLE 350 AWD	2/10/2021	7789	66.9	26.59	1.26
20	Mercedes-Benz GLE 350 RWD	2/23/2021	7803	66.7	27.19	1.23
12	Nissan Rogue AWD	2/4/2021	7781	62.3	25.76	1.21
13	Nissan Rogue FWD	2/5/2021	7784	62.4	25.80	1.21
2	2020 Tesla Model Y Long Range AWD	10/21/2020	7665	64.9	20.45	1.59
22	Tesla Model Y RWD	2/25/2021	7807	64.8	21.97	1.47
26	Toyota Prius Prime FWD	4/15/2021	7845	60.5	21.30	1.42
4	Toyota Sienna Hybrid AWD	1/15/2021	7742	68.0	25.31	1.34
5	Toyota Sienna Hybrid FWD	1/15/2021	7744	68.2	26.15	1.30
37	Volkswagen ID.4 AWD	2/22/2022	8092	61.8	21.84	1.41
30	Volkswagen ID.4 RWD	6/15/2021	7907	62.0	21.48	1.44

Appendix C

Individual Test Results Pages

Acura TLX FWD

YEAR: 2021
MAKE: Acura
MODEL: TLX
VIN: 19UUB5F32MA00####
DATE TESTED: 12/1/2020
VIMF TEST NO.: 7697
Mfg Date: 09/20
TYPE: Sedan
LOAD: Driver
Ride Height: None
ENGINE SIZE AND TYPE: 2.0L I4 Turbo
TRANSMISSION TYPE: 10AT
DRIVE: FWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Sunroof
FRONT TIRE TYPE: Bridgestone Turanza EL440 M+S
FRONT TIRE SIZE: 235/50R18 97V
FRONT TIRE PRESSURE: 32
REAR TIRE TYPE: Bridgestone Turanza EL440 M+S
REAR TIRE SIZE: 235/50R18 97V
REAR TIRE PRESSURE: 30

FRONT TRACK:	63.9	inches	Track Width Measurements
REAR TRACK:	64.4	inches	Front A 63.90 inches
AVERAGE TRACK:	64.2	inches	B 63.90 inches
WHEELBASE:	112.9	inches	C 63.90 inches
ROOF HEIGHT:	55.9	inches	D 63.90 inches
			Rear E 64.40 inches
GVWR	4806	lb	F 64.40 inches
FRONT GAWR	2557	lb	G 64.40 inches
REAR GAWR	2315	lb	H 64.40 inches
LEFT FRONT WEIGHT	1184.0	lb	Wheelbase Measurements
RIGHT FRONT WEIGHT	1088.8	lb	Left Side 112.85 inches
LEFT REAR WEIGHT	810.2	lb	Right Side 112.85 inches
RIGHT REAR WEIGHT	813.2	lb	
TOTAL WEIGHT	3896.2	lb	
C.G. LONGITUDINAL	47.02	inches (From Front Axle)	
C.G. LATERAL	-0.76	inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	42.2	3.146	-0.021	21.20
Run #3	57.6	4.273	-0.030	21.18
Run #4	42.2	-3.116	0.017	21.14
Run #5	57.6	-4.254	0.026	21.21
AVERAGE C.G. HEIGHT				21.18

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.5142$$

BMW 330i AWD

YEAR: 2021 **DATE TESTED:** 5/19/2021
MAKE: BMW **VIMF TEST NO.:** 7878
MODEL: 330i
VIN: 3MW5R7J00M8B9#### **Mfg Date:** 03/21
TYPE: Sedan **Ride Height:** N/A
LOAD: Driver
ENGINE SIZE AND TYPE: 2.0L I4 Twin Turbo
TRANSMISSION TYPE: 8AT
DRIVE: AWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Sunroof
FRONT TIRE TYPE: Bridgestone Turanza LS100A M+S
FRONT TIRE SIZE: 225/45R18 95H
FRONT TIRE PRESSURE: 32
REAR TIRE TYPE: Bridgestone Turanza LS100A M+S
REAR TIRE SIZE: 225/45R18 95H
REAR TIRE PRESSURE: 39

FRONT TRACK:	62.1	inches	Track Width Measurements
REAR TRACK:	62.7	inches	Front A 62.10 inches
AVERAGE TRACK:	62.4	inches	B 62.10 inches
WHEELBASE:	112.2	inches	C 62.10 inches
ROOF HEIGHT:	56.5	inches	D 62.10 inches
			Rear E 62.65 inches
GVWR	4773	lb	F 62.80 inches
FRONT GAWR	2326	lb	G 62.65 inches
REAR GAWR	2601	lb	H 62.80 inches
LEFT FRONT WEIGHT	1026.2	lb	Wheelbase Measurements
RIGHT FRONT WEIGHT	955.5	lb	Left Side 112.20 inches
LEFT REAR WEIGHT	909.2	lb	Right Side 112.20 inches
RIGHT REAR WEIGHT	922.4	lb	
TOTAL WEIGHT	3813.3	lb	
C.G. LONGITUDINAL	53.89	inches (From Front Axle)	
C.G. LATERAL	-0.47	inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	42.3	3.109	-0.018	20.82
Run #3	57.8	4.222	-0.025	20.84
Run #4	42.3	-3.079	0.010	20.84
Run #5	57.8	-4.182	0.016	20.83
AVERAGE C.G. HEIGHT				20.83

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.4980$$

Buick Envision AWD

YEAR: 2021 **DATE TESTED:** 1/28/2021
MAKE: Buick **VIMF TEST NO.:** 7769
MODEL: Envision
VIN: LRBZPR41MD04#### **Mfg Date:** 10/20
TYPE: SUV **Ride Height:** None
LOAD: Driver
ENGINE SIZE AND TYPE: 2.0L I4 Turbo
TRANSMISSION TYPE: 9AT
DRIVE: AWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Roof Rails
FRONT TIRE TYPE: Continental Pro Contact TX M+S
FRONT TIRE SIZE: 235/60R18 103H
FRONT TIRE PRESSURE: 35
REAR TIRE TYPE: Continental Pro Contact TX M+S
REAR TIRE SIZE: 235/60R18 103H
REAR TIRE PRESSURE: 35

FRONT TRACK:	63.3	inches	Track Width Measurements
REAR TRACK:	63.4	inches	Front A 63.30 inches
AVERAGE TRACK:	63.3	inches	B 63.25 inches
WHEELBASE:	109.7	inches	C 63.25 inches
ROOF HEIGHT:	64.1	inches	D 63.30 inches
			Rear E 63.35 inches
GVWR	5180	lb	F 63.35 inches
FRONT GAWR	2799	lb	G 63.35 inches
REAR GAWR	2700	lb	H 63.35 inches

LEFT FRONT WEIGHT	1248.0	lb	Wheelbase Measurements
RIGHT FRONT WEIGHT	1146.9	lb	Left Side 109.70 inches
LEFT REAR WEIGHT	856.4	lb	Right Side 109.70 inches
RIGHT REAR WEIGHT	819.6	lb	
TOTAL WEIGHT	4070.9	lb	

C.G. LONGITUDINAL	45.16	inches (From Front Axle)
C.G. LATERAL	-1.07	inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	40.9	3.682	-0.028	24.75
Run #3	56.6	5.071	-0.041	24.77
Run #4	40.9	-3.645	0.022	24.74
Run #5	56.6	-5.025	0.033	24.79
AVERAGE C.G. HEIGHT				24.76

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.2784$$

Buick Envision FWD

YEAR: 2021	DATE TESTED: 3/11/2021
MAKE: Buick	VIMF TEST NO.: 7825
MODEL: Envision	
VIN: LRBZNR41MD06####	Mfg Date: 11/20
TYPE: SUV	Ride Height:
LOAD: Driver	
ENGINE SIZE AND TYPE: 2.0L I4 Turbo	
TRANSMISSION TYPE: 9AT	
DRIVE: FWD	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT: Panoramic Sunroof, Roof Rails	
FRONT TIRE TYPE: Continental Pro Contact M+S	
FRONT TIRE SIZE: 245/45R20 99H	
FRONT TIRE PRESSURE: 36	
REAR TIRE TYPE: Continental Pro Contact M+S	
REAR TIRE SIZE: 245/45R20 99H	
REAR TIRE PRESSURE: 36	

FRONT TRACK: 63.3 inches	Track Width Measurements
REAR TRACK: 63.3 inches	Front A 63.30 inches
AVERAGE TRACK: 63.3 inches	B 63.30 inches
WHEELBASE: 109.5 inches	C 63.30 inches
ROOF HEIGHT: 63.9 inches	D 63.30 inches
	Rear E 63.30 inches
GVWR 5070 lb	F 63.30 inches
FRONT GAWR 2645 lb	G 63.30 inches
REAR GAWR 2535 lb	H 63.30 inches

LEFT FRONT WEIGHT 1244.5 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 1102.9 lb	Left Side 109.45 inches
LEFT REAR WEIGHT 810.7 lb	Right Side 109.45 inches
RIGHT REAR WEIGHT 822.8 lb	
TOTAL WEIGHT 3980.9 lb	

C.G. LONGITUDINAL 44.91 inches (From Front Axle)
C.G. LATERAL -1.03 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	32.1	3.112	-0.026	25.79
Run #3	42.4	4.088	-0.035	25.77
Run #4	32.1	-3.060	0.016	25.75
Run #5	42.4	-4.043	0.025	25.78
AVERAGE C.G. HEIGHT				25.77

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.2281$$

Chevrolet Tahoe 4WD

YEAR: 2021 **DATE TESTED:** 1/28/2021
MAKE: Chevrolet **VIMF TEST NO.:** 7767
MODEL: Tahoe
VIN: 1GNSKTKLXMR19#### **Mfg Date:** 11/20
TYPE: SUV **Ride Height:** Normal
LOAD: Driver
ENGINE SIZE AND TYPE: 6.2L V8
TRANSMISSION TYPE: 10AT
DRIVE: 4WD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Panoramic Sunroof, Roof Rails, Air Suspension
FRONT TIRE TYPE: Bridgestone Alenza A/S M+S
FRONT TIRE SIZE: 275/50R22 111H
FRONT TIRE PRESSURE: 36
REAR TIRE TYPE: Bridgestone Alenza A/S M+S
REAR TIRE SIZE: 275/50R22 111H
REAR TIRE PRESSURE: 36

FRONT TRACK:	68.5	inches	Track Width Measurements
REAR TRACK:	68.3	inches	Front A 68.50 inches
AVERAGE TRACK:	68.4	inches	B 68.50 inches
WHEELBASE:	120.8	inches	C 68.50 inches
ROOF HEIGHT:	75.9	inches	D 68.50 inches
			Rear E 68.30 inches
GVWR	7500	lb	F 68.30 inches
FRONT GAWR	3700	lb	G 68.30 inches
REAR GAWR	4300	lb	H 68.30 inches
LEFT FRONT WEIGHT	1594.3	lb	Wheelbase Measurements
RIGHT FRONT WEIGHT	1518.5	lb	Left Side 120.80 inches
LEFT REAR WEIGHT	1524.4	lb	Right Side 120.80 inches
RIGHT REAR WEIGHT	1495.3	lb	
TOTAL WEIGHT	6132.5	lb	
C.G. LONGITUDINAL	59.48	inches (From Front Axle)	
C.G. LATERAL	-0.59	inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	63.0	3.420	-0.041	29.90
Run #3	87.0	4.691	-0.059	29.91
Run #4	63.0	-3.385	0.042	29.76
Run #5	87.0	-4.655	0.062	29.79
AVERAGE C.G. HEIGHT				29.84

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.1462$$

Chevrolet Tahoe 2WD

YEAR: 2021	DATE TESTED: 2/17/2021
MAKE: Chevrolet	VIMF TEST NO.: 7796
MODEL: Tahoe	
VIN: 1GNSCNKD5MR12####	Mfg Date: 07/20
TYPE: SUV	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 6.2L V8	
TRANSMISSION TYPE: 10AT	
DRIVE: RWD	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT: Running Boards, Roof Rails	
FRONT TIRE TYPE: Michelin Primacy LTX M+S	
FRONT TIRE SIZE: 265/65R18 114T	
FRONT TIRE PRESSURE: 35	
REAR TIRE TYPE: Michelin Primacy LTX M+S	
REAR TIRE SIZE: 265/65R18 114T	
REAR TIRE PRESSURE: 35	

FRONT TRACK: 68.8 inches	Track Width Measurements
REAR TRACK: 68.6 inches	Front A 68.85 inches
AVERAGE TRACK: 68.7 inches	B 68.80 inches
WHEELBASE: 120.7 inches	C 68.80 inches
ROOF HEIGHT: 75.3 inches	D 68.85 inches
	Rear E 68.50 inches
GVWR 7400 lb	F 68.60 inches
FRONT GAWR 3500 lb	G 68.50 inches
REAR GAWR 4300 lb	H 68.60 inches

LEFT FRONT WEIGHT 1433.3 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 1391.5 lb	Left Side 120.70 inches
LEFT REAR WEIGHT 1438.1 lb	Right Side 120.70 inches
RIGHT REAR WEIGHT 1398.3 lb	
TOTAL WEIGHT 5661.2 lb	

C.G. LONGITUDINAL 60.47 inches (From Front Axle)
C.G. LATERAL -0.50 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	55.8	3.033	-0.032	29.57
Run #3	76.7	4.143	-0.044	29.61
Run #4	55.8	-2.996	0.024	29.56
Run #5	76.7	-4.105	0.037	29.60
AVERAGE C.G. HEIGHT				29.58

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.1609$$

Ford Bronco 4WD

YEAR: 2021 **DATE TESTED:** 11/12/2021
MAKE: Ford **VIMF TEST NO.:** 8054
MODEL: Bronco
VIN: 1FMEE5DP0MLA6#### **Mfg Date:** 06/21
TYPE: SUV **Ride Height:** N/A
LOAD: Driver
ENGINE SIZE AND TYPE: 2.7L V6
TRANSMISSION TYPE: 10AT
DRIVE: 4WD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT:
FRONT TIRE TYPE: Goodyear Territory MT M+S
FRONT TIRE SIZE: LT315/70R17C 113/110S
FRONT TIRE PRESSURE: 39
REAR TIRE TYPE: Goodyear Territory MT M+S
REAR TIRE SIZE: LT315/70R17C 113/110S
REAR TIRE PRESSURE: 39

FRONT TRACK:	66.9	inches	Track Width Measurements
REAR TRACK:	67.1	inches	Front A 67.00 inches
AVERAGE TRACK:	67.0	inches	B 66.70 inches
WHEELBASE:	116.5	inches	C 66.70 inches
ROOF HEIGHT:	75.5	inches	D 67.00 inches
			Rear E 67.10 inches
GVWR	6160	lb	F 67.00 inches
FRONT GAWR	3220	lb	G 67.10 inches
REAR GAWR	3070	lb	H 67.00 inches

LEFT FRONT WEIGHT	1496.8	lb	Wheelbase Measurements
RIGHT FRONT WEIGHT	1447.4	lb	Left Side 116.50 inches
LEFT REAR WEIGHT	1156.1	lb	Right Side 116.50 inches
RIGHT REAR WEIGHT	1127.2	lb	
TOTAL WEIGHT	5227.5	lb	

C.G. LONGITUDINAL 50.89 inches (From Front Axle)
C.G. LATERAL -0.50 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	52.0	2.932	-0.025	30.03
Run #3	72.3	4.054	-0.038	30.03
Run #4	52.0	-2.927	0.022	30.11
Run #5	72.3	-4.047	0.033	30.10
AVERAGE C.G. HEIGHT				30.07

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h \quad \boxed{1.1133}$$

Ford Bronco Sport 4WD

YEAR: 2021
MAKE: Ford
MODEL: Bronco Sport
VIN: 3FMCR9A68MRA2####
DATE TESTED: 2/24/2021
VIMF TEST NO.: 7805
Mfg Date: 12/20
TYPE: SUV
LOAD: Driver
ENGINE SIZE AND TYPE: 1.5L I4
TRANSMISSION TYPE: 8AT
DRIVE: 4WD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Roof Rails

FRONT TIRE TYPE: Continental Pro Contact M+S
FRONT TIRE SIZE: 225/65R17 102H
FRONT TIRE PRESSURE: 33
REAR TIRE TYPE: Continental Pro Contact M+S
REAR TIRE SIZE: 225/65R17 102H
REAR TIRE PRESSURE: 33

FRONT TRACK: 63.7 inches
REAR TRACK: 63.1 inches
AVERAGE TRACK: 63.4 inches
WHEELBASE: 105.1 inches
ROOF HEIGHT: 68.8 inches

Track Width Measurements

Front	A	63.70 inches
	B	63.70 inches
	C	63.70 inches
	D	63.70 inches
Rear	E	62.90 inches
	F	63.20 inches
	G	62.90 inches
	H	63.20 inches

GVWR 4630 lb
FRONT GAWR 2400 lb
REAR GAWR 2350 lb

LEFT FRONT WEIGHT 1092.2 lb
RIGHT FRONT WEIGHT 984.8 lb
LEFT REAR WEIGHT 789.4 lb
RIGHT REAR WEIGHT 758.5 lb
TOTAL WEIGHT 3624.9 lb

Wheelbase Measurements

Left Side	105.10	inches
Right Side	105.10	inches

C.G. LONGITUDINAL 44.88 inches (From Front Axle)
C.G. LATERAL -1.21 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	31.8	3.089	-0.017	26.01
Run #3	42.3	4.106	-0.025	26.03
Run #4	31.8	-3.073	0.013	26.05
Run #5	42.3	-4.079	0.020	26.05

AVERAGE C.G. HEIGHT 26.04

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.2171

Ford F-150 Crew Cab Hybrid 4X4

YEAR: 2021
MAKE: Ford
MODEL: F-150 Crew Cab
VIN: 1FTFW1ED2MFB1####
TYPE: Pickup
LOAD: Driver
ENGINE SIZE AND TYPE: 3.5L V6 Hybrid
TRANSMISSION TYPE: 10AT
DRIVE: 4X4
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Hitch

DATE TESTED: 5/5/2021
VIMF TEST NO.: 7860

Mfg Date: 02/21

Ride Height: N/A

FRONT TIRE TYPE: General Grabber APT M+S
FRONT TIRE SIZE: LT265/70R18 113/110S
FRONT TIRE PRESSURE: 41
REAR TIRE TYPE: General Grabber APT M+S
REAR TIRE SIZE: LT265/70R18 113/110S
REAR TIRE PRESSURE: 41

FRONT TRACK: 68.1 inches
REAR TRACK: 68.4 inches
AVERAGE TRACK: 68.2 inches
WHEELBASE: 146.1 inches
ROOF HEIGHT: 76.2 inches

Track Width Measurements

Measurement	Value	Unit
Front A	68.10	inches
B	68.00	inches
C	68.00	inches
D	68.10	inches
Rear E	68.35	inches
F	68.35	inches
G	68.35	inches
H	68.35	inches

GVWR 7350 lb
FRONT GAWR 3900 lb
REAR GAWR 4150 lb

LEFT FRONT WEIGHT 1746.5 lb
RIGHT FRONT WEIGHT 1736.5 lb
LEFT REAR WEIGHT 1323.5 lb
RIGHT REAR WEIGHT 1263.1 lb
TOTAL WEIGHT 6069.6 lb

Wheelbase Measurements

Measurement	Value	Unit
Left Side	146.00	inches
Right Side	146.10	inches

C.G. LONGITUDINAL 62.24 inches (From Front Axle)
C.G. LATERAL -0.40 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	61.1	3.000	-0.025	28.25
Run #3	85.2	4.169	-0.038	28.32
Run #4	61.1	-3.025	0.035	28.29
Run #5	85.2	-4.209	0.055	28.34

AVERAGE C.G. HEIGHT 28.30

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.2049

Ford F-150 Crew Cab Hybrid 4X2

YEAR: 2021 **DATE TESTED:** 9/10/2021
MAKE: Ford **VIMF TEST NO.:** 8016
MODEL: F-150 Crew Cab
VIN: 1FTFW1CDXMFC6#### **Mfg Date:** 8/21
TYPE: Pickup **Ride Height:** N/A
LOAD: Driver
ENGINE SIZE AND TYPE: 3.5L V6 Hybrid
TRANSMISSION TYPE: 10AT
DRIVE: 4X2
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Hitch, Running Boards
FRONT TIRE TYPE: Goodyear Wrangler Territory HT M+S
FRONT TIRE SIZE: 275/60R20 115T
FRONT TIRE PRESSURE: 35
REAR TIRE TYPE: Goodyear Wrangler Territory HT M+S
REAR TIRE SIZE: 275/60R20 115T
REAR TIRE PRESSURE: 35

FRONT TRACK:	68.1	inches	Track Width Measurements
REAR TRACK:	68.4	inches	Front A 68.15 inches
AVERAGE TRACK:	68.3	inches	B 68.10 inches
WHEELBASE:	145.9	inches	C 68.10 inches
ROOF HEIGHT:	75.2	inches	D 68.15 inches
			Rear E 68.35 inches
GVWR	7350	lb	F 68.40 inches
FRONT GAWR	3600	lb	G 68.35 inches
REAR GAWR	4150	lb	H 68.40 inches
LEFT FRONT WEIGHT	1633.0	lb	Wheelbase Measurements
RIGHT FRONT WEIGHT	1596.9	lb	Left Side 145.85 inches
LEFT REAR WEIGHT	1251.7	lb	Right Side 145.85 inches
RIGHT REAR WEIGHT	1236.3	lb	
TOTAL WEIGHT	5717.9	lb	
C.G. LONGITUDINAL	63.46	inches (From Front Axle)	
C.G. LATERAL	-0.31	inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	63.0	3.165	-0.029	28.24
Run #3	87.6	4.364	-0.042	28.22
Run #4	63.0	-3.108	0.025	28.02
Run #5	87.6	-4.301	0.040	28.03
AVERAGE C.G. HEIGHT				28.13

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.2132$$

Ford F-150 Extended Cab 4X4

YEAR: 2021
MAKE: Ford
MODEL: F-150 Extended Cab
VIN: 1FTFX1E85MKD1####
TYPE: Pickup
LOAD: Driver
ENGINE SIZE AND TYPE: 3.5L V6
TRANSMISSION TYPE: 10AT
DRIVE: 4X4
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Hitch

DATE TESTED: 5/12/2021
VIMF TEST NO.: 7866

Mfg Date: 12/20

Ride Height: N/A

FRONT TIRE TYPE: Pirelli Scorpion ATR M+S
FRONT TIRE SIZE: 265/70R17 115T
FRONT TIRE PRESSURE: 35
REAR TIRE TYPE: Pirelli Scorpion ATR M+S
REAR TIRE SIZE: 265/70R17 115T
REAR TIRE PRESSURE: 35

FRONT TRACK: 68.1 inches
REAR TRACK: 68.5 inches
AVERAGE TRACK: 68.3 inches
WHEELBASE: 145.9 inches
ROOF HEIGHT: 75.8 inches

Track Width Measurements

Front	A	68.10 inches
	B	68.10 inches
	C	68.10 inches
	D	68.10 inches
Rear	E	68.40 inches
	F	68.50 inches
	G	68.40 inches
	H	68.50 inches

GVWR 7050 lb
FRONT GAWR 3450 lb
REAR GAWR 3800 lb

LEFT FRONT WEIGHT 1576.4 lb
RIGHT FRONT WEIGHT 1485.7 lb
LEFT REAR WEIGHT 1013.7 lb
RIGHT REAR WEIGHT 994.5 lb
TOTAL WEIGHT 5070.3 lb

Wheelbase Measurements

Left Side	145.80	inches
Right Side	145.90	inches

C.G. LONGITUDINAL 57.77 inches (From Front Axle)
C.G. LATERAL -0.74 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	56.3	2.961	-0.020	28.60
Run #3	82.2	4.284	-0.031	28.62
Run #4	56.3	-2.947	0.022	28.55
Run #5	82.2	-4.279	0.041	28.54

AVERAGE C.G. HEIGHT 28.58

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.1946

Ford F-150 Extended Cab 4X2

YEAR: 2021
MAKE: Ford
MODEL: F-150 Extended Cab
VIN: 1FTEX1CB4MKE0####
TYPE: Pickup
LOAD: Driver
ENGINE SIZE AND TYPE: 3.5L V6
TRANSMISSION TYPE: 10AT
DRIVE: 4X2
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Hitch

DATE TESTED: 8/19/2021
VIMF TEST NO.: 7987

Mfg Date: 06/21

Ride Height: N/A

FRONT TIRE TYPE: Michelin Primacy LTX M+S
FRONT TIRE SIZE: 245/70R17 110T
FRONT TIRE PRESSURE: 36
REAR TIRE TYPE: Michelin Primacy LTX M+S
REAR TIRE SIZE: 245/70R17 110T
REAR TIRE PRESSURE: 36

FRONT TRACK: 68.2 inches
REAR TRACK: 68.5 inches
AVERAGE TRACK: 68.3 inches
WHEELBASE: 145.9 inches
ROOF HEIGHT: 73.5 inches

Track Width Measurements

Location	Measurement	Value	Unit
Front	A	68.20	inches
	B	68.10	inches
	C	68.10	inches
	D	68.20	inches
Rear	E	68.50	inches
	F	68.50	inches
	G	68.50	inches
	H	68.50	inches

GVWR 6250 lb
FRONT GAWR 3000 lb
REAR GAWR 3400 lb

LEFT FRONT WEIGHT 1380.9 lb
RIGHT FRONT WEIGHT 1340.1 lb
LEFT REAR WEIGHT 1032.1 lb
RIGHT REAR WEIGHT 1009.6 lb
TOTAL WEIGHT 4762.7 lb

Wheelbase Measurements

Side	Measurement	Value	Unit
Left Side	Wheelbase	145.90	inches
Right Side	Wheelbase	145.90	inches

C.G. LONGITUDINAL 62.61 inches (From Front Axle)
C.G. LATERAL -0.45 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	62.3	3.200	-0.025	27.61
Run #3	82.4	4.211	-0.037	27.62
Run #4	62.3	-3.159	0.015	27.53
Run #5	82.4	-4.161	0.027	27.52

AVERAGE C.G. HEIGHT 27.57

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.2391

Ford F-250 Tremor Crew Cab 4X4

YEAR: 2021 **DATE TESTED:** 8/27/2021
MAKE: Ford **VIMF TEST NO.:** 7996
MODEL: F-250 Tremor
VIN: 1FT7W2BNXMEE0#### **Mfg Date:** 04/21
TYPE: Pickup Crew Cab **Ride Height:**
LOAD: Driver
ENGINE SIZE AND TYPE: 7.3L V8
TRANSMISSION TYPE: 10AT
DRIVE: 4X4
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Running Boards, Panoramic Sunroof, Hitch
FRONT TIRE TYPE: Goodyear Wrangler Duratrac M+S
FRONT TIRE SIZE: LT285/75R18 129/126Q
FRONT TIRE PRESSURE: 60
REAR TIRE TYPE: Goodyear Wrangler Duratrac M+S
REAR TIRE SIZE: LT285/75R18 129/126Q
REAR TIRE PRESSURE: 80

FRONT TRACK:	68.5	inches	Track Width Measurements		
REAR TRACK:	67.3	inches	Front A	68.50	inches
AVERAGE TRACK:	67.9	inches	B	68.50	inches
WHEELBASE:	160.5	inches	C	68.50	inches
ROOF HEIGHT:	82.8	inches	D	68.50	inches
			Rear E	67.30	inches
GVWR	10000	lb	F	67.30	inches
FRONT GAWR	4800	lb	G	67.30	inches
REAR GAWR	6340	lb	H	67.30	inches
Wheelbase Measurements					
LEFT FRONT WEIGHT	2163.2	lb	Left Side	160.50	inches
RIGHT FRONT WEIGHT	2076.1	lb	Right Side	160.50	inches
LEFT REAR WEIGHT	1567.7	lb			
RIGHT REAR WEIGHT	1457.0	lb			
TOTAL WEIGHT	7264.0	lb			
C.G. LONGITUDINAL	66.83	inches (From Front Axle)			
C.G. LATERAL	-0.92	inches (Negative Towards Driver's Side)			

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	57.1	3.389	-0.049	31.84
Run #3	72.3	4.286	-0.065	31.86
Run #4	57.1	-3.359	0.033	32.06
Run #5	72.3	-4.256	0.046	32.11
AVERAGE C.G. HEIGHT				31.97

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.0620$$

Ford Mustang Mach-E BEV AWD

YEAR: 2021
MAKE: Ford
MODEL: Mustang Mach-E
VIN: 3FMTK3SU1MMA0####
DATE TESTED: 2/11/2021
VIMF TEST NO.: 7791
Mfg Date: 12/20
TYPE: Sedan
LOAD: Driver
ENGINE SIZE AND TYPE: Electric
TRANSMISSION TYPE: Auto
DRIVE: AWD
DOORS: 4
FUEL: Electric
OPTIONAL EQUIPMENT: Panoramic Sunroof

FRONT TIRE TYPE: Michelin Primacy A/S M+S
FRONT TIRE SIZE: 225/55R19 103H
FRONT TIRE PRESSURE: 39
REAR TIRE TYPE: Michelin Primacy A/S M+S
REAR TIRE SIZE: 225/55R19 103H
REAR TIRE PRESSURE: 39

FRONT TRACK: 63.6 inches
REAR TRACK: 63.9 inches
AVERAGE TRACK: 63.7 inches
WHEELBASE: 117.5 inches
ROOF HEIGHT: 62.4 inches

Track Width Measurements

Location	Measurement	Value	Unit
Front	A	63.60	inches
	B	63.60	inches
	C	63.60	inches
	D	63.60	inches
Rear	E	63.80	inches
	F	63.90	inches
	G	63.80	inches
	H	63.90	inches

GVWR 5800 lb
FRONT GAWR 2660 lb
REAR GAWR 3225 lb

LEFT FRONT WEIGHT 1274.1 lb
RIGHT FRONT WEIGHT 1171.8 lb
LEFT REAR WEIGHT 1285.4 lb
RIGHT REAR WEIGHT 1273.7 lb
TOTAL WEIGHT 5005.0 lb

Wheelbase Measurements

Side	Measurement	Value	Unit
Left	Side	117.50	inches
Right	Side	117.50	inches

C.G. LONGITUDINAL 60.08 inches (From Front Axle)
C.G. LATERAL -0.72 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	51.4	3.556	-0.040	20.72
Run #3	66.6	4.595	-0.056	20.73
Run #4	51.4	-3.514	0.035	20.67
Run #5	66.6	-4.552	0.052	20.69

AVERAGE C.G. HEIGHT 20.70

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.5390

Ford Mustang Mach-E BEV RWD

YEAR: 2021
MAKE: Ford
MODEL: Mustang Mach-E
VIN: 3FMTK3RM4MMA0####
DATE TESTED: 8/18/2021
VIMF TEST NO.: 7985
Mfg Date: 07/20
TYPE: SUV
LOAD: Driver
ENGINE SIZE AND TYPE: Electric
TRANSMISSION TYPE: Auto
DRIVE: RWD
DOORS: 4
FUEL: Electric
OPTIONAL EQUIPMENT: Panoramic Sunroof
FRONT TIRE TYPE: Michelin Primacy A/S M+S
FRONT TIRE SIZE: 225/55R19 103H
FRONT TIRE PRESSURE: 39
REAR TIRE TYPE: Michelin Primacy A/S M+S
REAR TIRE SIZE: 225/55R19 103H
REAR TIRE PRESSURE: 39

FRONT TRACK:	63.7	inches	Track Width Measurements
REAR TRACK:	63.8	inches	Front A 63.65 inches
AVERAGE TRACK:	63.7	inches	B 63.70 inches
WHEELBASE:	117.6	inches	C 63.70 inches
ROOF HEIGHT:	62.3	inches	D 63.65 inches
			Rear E 63.70 inches
GVWR	5340	lb	F 63.80 inches
FRONT GAWR	2420	lb	G 63.70 inches
REAR GAWR	3040	lb	H 63.80 inches
LEFT FRONT WEIGHT	1120.8	lb	Wheelbase Measurements
RIGHT FRONT WEIGHT	1075.3	lb	Left Side 117.60 inches
LEFT REAR WEIGHT	1216.4	lb	Right Side 117.55 inches
RIGHT REAR WEIGHT	1157.0	lb	
TOTAL WEIGHT	4569.5	lb	
C.G. LONGITUDINAL	61.07	inches (From Front Axle)	
C.G. LATERAL	-0.73	inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	42.1	3.081	-0.024	21.46
Run #3	57.8	4.214	-0.035	21.47
Run #4	42.1	-3.061	0.020	21.47
Run #5	57.8	-4.189	0.032	21.47
AVERAGE C.G. HEIGHT				21.47

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.4838$$

Ford Transit 350HR 15 Pass AWD

YEAR: 2021
MAKE: Ford
MODEL: Transit 350HR
VIN: 1FBVU5XG2MKA1####
TYPE: Van - 15 Passenger
LOAD: Driver
ENGINE SIZE AND TYPE: 3.5L V6
TRANSMISSION TYPE: 10AT
DRIVE: AWD
DOORS: 3
FUEL: Full
OPTIONAL EQUIPMENT:

DATE TESTED: 4/13/2021
VIMF TEST NO.: 7841

Mfg Date: 1/21

Ride Height: N/A

FRONT TIRE TYPE: Hankook Dynapro HT M+S
FRONT TIRE SIZE: 205/75R16C 113/111R
FRONT TIRE PRESSURE: 70
REAR TIRE TYPE: Hankook Dynapro HT M+S
REAR TIRE SIZE: 205/75R16C 113/111R Dually
REAR TIRE PRESSURE: 55

FRONT TRACK: 68.6 inches
REAR TRACK: 77.0 inches
AVERAGE TRACK: 72.8 inches
WHEELBASE: 147.8 inches
ROOF HEIGHT: 107.1 inches

Track Width Measurements

Location	Measurement	Value	Unit
Front	A	68.60	inches
	B	68.50	inches
	C	68.50	inches
	D	68.60	inches
Rear	E	77.00	inches
	F	77.05	inches
	G	77.00	inches
	H	77.05	inches

GVWR 10360 lb
FRONT GAWR 4465 lb
REAR GAWR 6725 lb

LEFT FRONT WEIGHT 1773.5 lb
RIGHT FRONT WEIGHT 1727.1 lb
LEFT REAR WEIGHT 2025.8 lb
RIGHT REAR WEIGHT 2030.1 lb
TOTAL WEIGHT 7556.5 lb

Wheelbase Measurements

Side	Measurement	Value	Unit
Left	Side	147.80	inches
Right	Side	147.80	inches

C.G. LONGITUDINAL 79.33 inches (From Front Axle)
C.G. LATERAL -0.19 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	37.7	2.933	-0.026	35.15
Run #3	52.7	4.050	-0.037	35.10
Run #4	42.6	-3.244	0.025	35.03
Run #5	57.8	-4.375	0.041	34.96

AVERAGE C.G. HEIGHT 35.06

$$T/(2 \times H) = \text{AVERAGE TRACK} / (2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.0381

Ford Transit 350HR 12 Pass AWD

YEAR: 2021
MAKE: Ford
MODEL: Transit 350HR
VIN: 1FBAX9XG3MKA1####
TYPE: Van - 12 Passenger
LOAD: Driver
ENGINE SIZE AND TYPE: 3.5L V6
TRANSMISSION TYPE: 10AT
DRIVE: AWD
DOORS: 3
FUEL: Full
OPTIONAL EQUIPMENT:

DATE TESTED: 4/14/2021
VIMF TEST NO.: 7844

Mfg Date: 1/21

Ride Height: N/A

FRONT TIRE TYPE: Continental VanContact A/S M+S
FRONT TIRE SIZE: 235/65R16C 121/119R
FRONT TIRE PRESSURE: 57
REAR TIRE TYPE: Continental VanContact A/S M+S
REAR TIRE SIZE: 235/65R16C 121/119R
REAR TIRE PRESSURE: 75

FRONT TRACK: 68.3 inches
REAR TRACK: 69.7 inches
AVERAGE TRACK: 69.0 inches
WHEELBASE: 147.9 inches
ROOF HEIGHT: 106.2 inches

Track Width Measurements

Location	Measurement	Value	Unit
Front	A	68.30	inches
	B	68.20	inches
	C	68.20	inches
	D	68.30	inches
Rear	E	69.70	inches
	F	69.60	inches
	G	69.70	inches
	H	69.60	inches

GVWR 9250 lb
FRONT GAWR 4465 lb
REAR GAWR 5780 lb

LEFT FRONT WEIGHT 1917.8 lb
RIGHT FRONT WEIGHT 1754.2 lb
LEFT REAR WEIGHT 1564.7 lb
RIGHT REAR WEIGHT 1662.2 lb
TOTAL WEIGHT 6898.9 lb

Wheelbase Measurements

Side	Measurement	Value	Unit
Left Side	Wheelbase	147.90	inches
Right Side	Wheelbase	147.90	inches

C.G. LONGITUDINAL 69.18 inches (From Front Axle)
C.G. LATERAL -0.32 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	37.7	2.702	-0.028	34.18
Run #3	52.9	3.738	-0.039	34.10
Run #4	47.8	-3.441	0.042	34.20
Run #5	63.3	-4.579	0.074	34.12

AVERAGE C.G. HEIGHT 34.15

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.0095

Genesis G80 RWD

YEAR: 2021 **DATE TESTED:** 2/4/2021
MAKE: Genesis **VIMF TEST NO.:** 7779
MODEL: G80
VIN: KMTGB4SC5MU04#### **Mfg Date:** 10/20
TYPE: Sedan **Ride Height:** None
LOAD: Driver
ENGINE SIZE AND TYPE: 2.5L I4 Turbo
TRANSMISSION TYPE: 8AT
DRIVE: RWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Panoramic Sunroof
FRONT TIRE TYPE: Michelin Primacy Tour A/S M+S
FRONT TIRE SIZE: 245/45R19 102W
FRONT TIRE PRESSURE: 36
REAR TIRE TYPE: Michelin Primacy Tour A/S M+S
REAR TIRE SIZE: 275/40R19 105W
REAR TIRE PRESSURE: 36

FRONT TRACK:	64.2	inches	Track Width Measurements
REAR TRACK:	64.3	inches	Front A 64.25 inches
AVERAGE TRACK:	64.2	inches	B 64.15 inches
WHEELBASE:	118.5	inches	C 64.15 inches
ROOF HEIGHT:	57.8	inches	D 64.25 inches
			Rear E 64.20 inches
GVWR	5104	lb	F 64.35 inches
FRONT GAWR	2866	lb	G 64.20 inches
REAR GAWR	3097	lb	H 64.35 inches

LEFT FRONT WEIGHT	1145.4	lb	Wheelbase Measurements
RIGHT FRONT WEIGHT	1053.3	lb	Left Side 118.50 inches
LEFT REAR WEIGHT	1052.1	lb	Right Side 118.55 inches
RIGHT REAR WEIGHT	1048.0	lb	
TOTAL WEIGHT	4298.8	lb	

C.G. LONGITUDINAL	57.90	inches (From Front Axle)
C.G. LATERAL	-0.72	inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	40.9	3.143	-0.026	22.06
Run #3	56.3	4.318	-0.038	22.09
Run #4	40.9	-3.141	0.027	22.08
Run #5	56.3	-4.313	0.040	22.09
AVERAGE C.G. HEIGHT				22.08

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.4546$$

Genesis GV80 AWD

YEAR: 2021	DATE TESTED: 2/19/2021
MAKE: Genesis	VIMF TEST NO.: 7799
MODEL: GV80	
VIN: KMUHCESC3MU03####	Mfg Date: 11/20
TYPE: SUV	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 3.5L V6	
TRANSMISSION TYPE: 8AT	
DRIVE: AWD	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT: Panoramic Sunroof, Roof Rails	
FRONT TIRE TYPE: Michelin Primacy Tour M+S	
FRONT TIRE SIZE: 265/50R20 111W	
FRONT TIRE PRESSURE: 33	
REAR TIRE TYPE: Michelin Primacy Tour M+S	
REAR TIRE SIZE: 265/50R20 111W	
REAR TIRE PRESSURE: 36	

FRONT TRACK: 66.6 inches	Track Width Measurements
REAR TRACK: 66.4 inches	Front A 65.95 inches
AVERAGE TRACK: 66.5 inches	B 65.85 inches
WHEELBASE: 116.5 inches	C 68.80 inches
ROOF HEIGHT: 67.2 inches	D 65.95 inches
	Rear E 66.25 inches
	F 66.50 inches
	G 66.25 inches
	H 66.50 inches

GVWR 6108 lb	
FRONT GAWR 3064 lb	
REAR GAWR 3274 lb	

LEFT FRONT WEIGHT 1373.4 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 1280.5 lb	Left Side 116.50 inches
LEFT REAR WEIGHT 1246.0 lb	Right Side 116.50 inches
RIGHT REAR WEIGHT 1249.9 lb	
TOTAL WEIGHT 5149.8 lb	

C.G. LONGITUDINAL 56.46 inches (From Front Axle)
C.G. LATERAL -0.58 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	31.8	3.227	-0.020	26.36
Run #3	42.3	4.292	-0.028	26.40
Run #4	31.8	-3.222	0.019	26.42
Run #5	42.3	-4.285	0.028	26.43
AVERAGE C.G. HEIGHT				26.40

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.2595$$

Genesis GV80 RWD

YEAR: 2021 **DATE TESTED:** 7/6/2021
MAKE: Genesis **VIMF TEST NO.:** 7931
MODEL: GV80
VIN: KMUHB4SB7MU04#### **Mfg Date:** 11/20
TYPE: SUV **Ride Height:** N/A
LOAD: Driver
ENGINE SIZE AND TYPE: 2.5L I4
TRANSMISSION TYPE: 8AT
DRIVE: RWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Panoramic Sunroof
FRONT TIRE TYPE: Pirelli Scorpion Zero M+S
FRONT TIRE SIZE: 265/55R19 103W
FRONT TIRE PRESSURE: 33
REAR TIRE TYPE: Pirelli Scorpion Zero M+S
REAR TIRE SIZE: 265/55R19 103W
REAR TIRE PRESSURE: 36

FRONT TRACK: 65.9 inches REAR TRACK: 66.5 inches AVERAGE TRACK: 66.2 inches WHEELBASE: 116.4 inches ROOF HEIGHT: 67.4 inches GVWR: 5777 lb FRONT GAWR: 3064 lb REAR GAWR: 3274 lb LEFT FRONT WEIGHT: 1235.1 lb RIGHT FRONT WEIGHT: 1123.9 lb LEFT REAR WEIGHT: 1211.6 lb RIGHT REAR WEIGHT: 1222.4 lb TOTAL WEIGHT: 4793.0 lb C.G. LONGITUDINAL: 59.11 inches (From Front Axle) C.G. LATERAL: -0.69 inches (Negative Towards Driver's Side)	Track Width Measurements <table border="0"> <tr><td>Front A</td><td>65.85</td><td>inches</td></tr> <tr><td>B</td><td>65.85</td><td>inches</td></tr> <tr><td>C</td><td>65.85</td><td>inches</td></tr> <tr><td>D</td><td>65.85</td><td>inches</td></tr> <tr><td>Rear E</td><td>66.40</td><td>inches</td></tr> <tr><td>F</td><td>66.50</td><td>inches</td></tr> <tr><td>G</td><td>66.40</td><td>inches</td></tr> <tr><td>H</td><td>66.50</td><td>inches</td></tr> </table> Wheelbase Measurements <table border="0"> <tr><td>Left Side</td><td>116.40</td><td>inches</td></tr> <tr><td>Right Side</td><td>116.40</td><td>inches</td></tr> </table>	Front A	65.85	inches	B	65.85	inches	C	65.85	inches	D	65.85	inches	Rear E	66.40	inches	F	66.50	inches	G	66.40	inches	H	66.50	inches	Left Side	116.40	inches	Right Side	116.40	inches
Front A	65.85	inches																													
B	65.85	inches																													
C	65.85	inches																													
D	65.85	inches																													
Rear E	66.40	inches																													
F	66.50	inches																													
G	66.40	inches																													
H	66.50	inches																													
Left Side	116.40	inches																													
Right Side	116.40	inches																													

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	32.3	3.377	-0.022	26.76
Run #3	42.4	4.419	-0.030	26.79
Run #4	32.3	-3.394	0.025	26.81
Run #5	42.4	-4.413	0.032	26.78

AVERAGE C.G. HEIGHT 26.79

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.2348

Hyundai Elantra FWD

YEAR: 2021
MAKE: Hyundai
MODEL: Elantra
VIN: KMHLN4AG5MU07####
TYPE: Sedan
LOAD: Driver
ENGINE SIZE AND TYPE: 2.0L I4
TRANSMISSION TYPE: CVT
DRIVE: FWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Sunroof
DATE TESTED: 1/26/2021
VIMF TEST NO.: 7761
Mfg Date: 10/20
Ride Height: None
FRONT TIRE TYPE: Kumho Majesty Solus M+S
FRONT TIRE SIZE: 225/45R17 91W
FRONT TIRE PRESSURE: 34
REAR TIRE TYPE: Kumho Majesty Solus M+S
REAR TIRE SIZE: 225/45R17 91W
REAR TIRE PRESSURE: 31

FRONT TRACK:	62.2	inches	Track Width Measurements
REAR TRACK:	62.4	inches	Front A 62.20 inches
AVERAGE TRACK:	62.3	inches	B 62.20 inches
WHEELBASE:	107.2	inches	C 62.20 inches
ROOF HEIGHT:	55.4	inches	D 62.20 inches
			Rear E 62.35 inches
GVWR	3858	lb	F 62.50 inches
FRONT GAWR	2271	lb	G 62.35 inches
REAR GAWR	2094	lb	H 62.50 inches
LEFT FRONT WEIGHT	941.0	lb	Wheelbase Measurements
RIGHT FRONT WEIGHT	898.1	lb	Left Side 107.10 inches
LEFT REAR WEIGHT	628.3	lb	Right Side 107.20 inches
RIGHT REAR WEIGHT	581.3	lb	
TOTAL WEIGHT	3048.7	lb	
C.G. LONGITUDINAL	42.49	inches (From Front Axle)	
C.G. LATERAL	-0.92	inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	40.9	3.213	-0.013	21.41
Run #3	61.3	4.781	-0.020	21.46
Run #4	40.9	-3.233	0.013	21.62
Run #5	61.3	-4.806	0.023	21.62
AVERAGE C.G. HEIGHT				21.53

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.4471$$

Kia K5 FWD

YEAR: 2021 **DATE TESTED:** 9/30/2020
MAKE: Kia **VIMF TEST NO.:** 7658
MODEL: K5 EX
VIN: 5XXG34J21MG02#### **Mfg Date:** 08/20
TYPE: Sedan **Ride Height:** None
LOAD: Driver
ENGINE SIZE AND TYPE: 1.6L I4 Turbo
TRANSMISSION TYPE: 8AT
DRIVE: FWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Panoramic Sunroof
FRONT TIRE TYPE: Pirelli Pzero All Season M+S
FRONT TIRE SIZE: 235/45R18 94V
FRONT TIRE PRESSURE: 35
REAR TIRE TYPE: Pirelli Pzero All Season M+S
REAR TIRE SIZE: 235/45R18 94V
REAR TIRE PRESSURE: 35
FRONT TRACK: 63.6 inches
REAR TRACK: 63.9 inches
AVERAGE TRACK: 63.7 inches
WHEELBASE: 112.4 inches
ROOF HEIGHT: 56.7 inches
GVWR: 4354 lb
FRONT GAWR: 2513 lb
REAR GAWR: 2513 lb
LEFT FRONT WEIGHT: 1060.3 lb
RIGHT FRONT WEIGHT: 1005.1 lb
LEFT REAR WEIGHT: 718.2 lb
RIGHT REAR WEIGHT: 694.0 lb
TOTAL WEIGHT: 3477.6 lb
C.G. LONGITUDINAL: 45.60 inches (From Front Axle)
C.G. LATERAL: -0.73 inches (Negative Towards Driver's Side)

Track Width Measurements

Front A	63.55	inches
B	63.60	inches
C	63.60	inches
D	63.55	inches
Rear E	63.80	inches
F	63.90	inches
G	63.80	inches
H	63.90	inches

Wheelbase Measurements

Left Side	112.40	inches
Right Side	112.30	inches

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	41.4	3.353	-0.020	22.49
Run #3	56.6	4.554	-0.027	22.49
Run #4	41.4	-3.330	0.013	22.49
Run #5	56.6	-4.527	0.020	22.49

AVERAGE C.G. HEIGHT 22.49

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.4165

Kia Sorento AWD

YEAR: 2021 **DATE TESTED:** 1/21/2021
MAKE: Kia **VIMF TEST NO.:** 7756
MODEL: Sorento
VIN: 5XYRGDLC3MG00#### **Mfg Date:** 10/20
TYPE: SUV **Ride Height:** None
LOAD: Driver
ENGINE SIZE AND TYPE: 2.5L I4
TRANSMISSION TYPE: 8AT
DRIVE: AWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT:

FRONT TIRE TYPE: Continental Cross Contact LX Sport M+S
FRONT TIRE SIZE: 235/65R17 104H
FRONT TIRE PRESSURE: 35
REAR TIRE TYPE: Continental Cross Contact LX Sport M+S
REAR TIRE SIZE: 235/65R17 104H
REAR TIRE PRESSURE: 35

FRONT TRACK: 65.0 inches
REAR TRACK: 65.4 inches
AVERAGE TRACK: 65.2 inches
WHEELBASE: 111.1 inches
ROOF HEIGHT: 67.3 inches

Track Width Measurements

Front	A	65.00 inches
	B	65.00 inches
	C	65.00 inches
	D	65.00 inches
Rear	E	65.30 inches
	F	65.40 inches
	G	65.30 inches
	H	65.40 inches

GVWR 5467 lb
FRONT GAWR 2866 lb
REAR GAWR 2976 lb

LEFT FRONT WEIGHT 1181.4 lb
RIGHT FRONT WEIGHT 1059.8 lb
LEFT REAR WEIGHT 892.4 lb
RIGHT REAR WEIGHT 881.3 lb
TOTAL WEIGHT 4014.9 lb

Wheelbase Measurements

Left Side	111.10	inches
Right Side	111.10	inches

C.G. LONGITUDINAL 49.08 inches (From Front Axle)
C.G. LATERAL -1.07 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	37.5	3.714	-0.026	26.21
Run #3	47.6	4.683	-0.034	26.19
Run #4	37.5	-3.658	0.019	26.15
Run #5	47.6	-4.619	0.026	26.14

AVERAGE C.G. HEIGHT 26.17

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.2451

Kia Sorento FWD

YEAR: 2021 **DATE TESTED:** 1/21/2021
MAKE: Kia **VIMF TEST NO.:** 7754
MODEL: Sorento
VIN: 5XYRL4LC6MG01#### **Mfg Date:** 11/20
TYPE: SUV **Ride Height:** None
LOAD: Driver
ENGINE SIZE AND TYPE: 2.5L I4
TRANSMISSION TYPE: 8AT
DRIVE: FWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT:

FRONT TIRE TYPE: Continental Cross Contact LX Sport M+S
FRONT TIRE SIZE: 235/60R18 103H
FRONT TIRE PRESSURE: 35
REAR TIRE TYPE: Continental Cross Contact LX Sport M+S
REAR TIRE SIZE: 235/60R18 103H
REAR TIRE PRESSURE: 35

FRONT TRACK: 64.8 inches
REAR TRACK: 65.2 inches
AVERAGE TRACK: 65.0 inches
WHEELBASE: 111.1 inches
ROOF HEIGHT: 66.7 inches

Track Width Measurements

Front	A	64.80 inches
	B	64.80 inches
	C	64.80 inches
	D	64.80 inches
Rear	E	65.15 inches
	F	65.15 inches
	G	65.15 inches
	H	65.15 inches

GVWR 5357 lb
FRONT GAWR 2866 lb
REAR GAWR 2976 lb

LEFT FRONT WEIGHT 1165.0 lb
RIGHT FRONT WEIGHT 1054.1 lb
LEFT REAR WEIGHT 874.1 lb
RIGHT REAR WEIGHT 853.7 lb
TOTAL WEIGHT 3946.9 lb

Wheelbase Measurements

Left Side	111.10	inches
Right Side	111.10	inches

C.G. LONGITUDINAL 48.64 inches (From Front Axle)
C.G. LATERAL -1.08 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	37.5	3.663	-0.024	26.04
Run #3	47.6	4.616	-0.031	26.02
Run #4	37.5	-3.597	0.016	25.94
Run #5	47.6	-4.543	0.023	25.93

AVERAGE C.G. HEIGHT 25.98

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.2504

Mercedes-Benz GLB 250 AWD

YEAR: 2021 **DATE TESTED:** 2/10/2021
MAKE: Mercedes-Benz **VIMF TEST NO.:** 7787
MODEL: GLB250
VIN: W1N4M4HB9MW08#### **Mfg Date:** 11/20
TYPE: SUV **Ride Height:** N/A
LOAD: Driver
ENGINE SIZE AND TYPE: 2.0L I4 Turbo
TRANSMISSION TYPE: 8AT
DRIVE: AWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Panoramic Sunroof, Roof Rails
FRONT TIRE TYPE: Pirelli Scorpion Zero All Season M+S
FRONT TIRE SIZE: 235/55R18 100H
FRONT TIRE PRESSURE: 43
REAR TIRE TYPE: Pirelli Scorpion Zero All Season M+S
REAR TIRE SIZE: 235/55R18 100H
REAR TIRE PRESSURE: 43

FRONT TRACK:	62.4	inches	Track Width Measurements
REAR TRACK:	62.6	inches	Front A 62.40 inches
AVERAGE TRACK:	62.5	inches	B 62.35 inches
WHEELBASE:	111.3	inches	C 62.35 inches
ROOF HEIGHT:	65.7	inches	D 62.40 inches
			Rear E 62.60 inches
GVWR	4861	lb	F 62.65 inches
FRONT GAWR	2568	lb	G 62.60 inches
REAR GAWR	2403	lb	H 62.65 inches
LEFT FRONT WEIGHT	1201.8	lb	Wheelbase Measurements
RIGHT FRONT WEIGHT	1099.7	lb	Left Side 111.30 inches
LEFT REAR WEIGHT	864.3	lb	Right Side 111.30 inches
RIGHT REAR WEIGHT	842.9	lb	
TOTAL WEIGHT	4008.7	lb	
C.G. LONGITUDINAL	47.40	inches (From Front Axle)	
C.G. LATERAL	-0.96	inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	37.4	3.462	-0.034	25.00
Run #3	57.8	5.309	-0.056	25.03
Run #4	37.7	-3.494	0.037	25.07
Run #5	52.7	-4.847	0.054	25.06
AVERAGE C.G. HEIGHT				25.04

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.2481$$

Mercedes-Benz GLB 250 FWD

YEAR: 2021 **DATE TESTED:** 2/23/2021
MAKE: Mercedes-Benz **VIMF TEST NO.:** 7801
MODEL: GLB250
VIN: W1N4M4GB2MW10#### **Mfg Date:** 1/21
TYPE: SUV **Ride Height:** N/A
LOAD: Driver
ENGINE SIZE AND TYPE: 2.0L I4 Turbo
TRANSMISSION TYPE: 8DCT
DRIVE: FWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Panoramic Sunroof, Roof Rails
FRONT TIRE TYPE: Continental Pro Contact GX SSR M+S
FRONT TIRE SIZE: 235/50R19 99H
FRONT TIRE PRESSURE: 43
REAR TIRE TYPE: Continental Pro Contact GX SSR M+S
REAR TIRE SIZE: 235/50R19 99H
REAR TIRE PRESSURE: 43

FRONT TRACK:	62.4	inches	Track Width Measurements		
REAR TRACK:	62.4	inches	Front A	62.45	inches
AVERAGE TRACK:	62.4	inches	B	62.30	inches
WHEELBASE:	111.4	inches	C	62.30	inches
ROOF HEIGHT:	66.1	inches	D	62.45	inches
			Rear E	62.40	inches
GVWR	5126	lb	F	62.45	inches
FRONT GAWR	2535	lb	G	62.40	inches
REAR GAWR	2635	lb	H	62.45	inches
LEFT FRONT WEIGHT	1197.4	lb	Wheelbase Measurements		
RIGHT FRONT WEIGHT	1085.8	lb	Left Side	111.40	inches
LEFT REAR WEIGHT	863.0	lb	Right Side	111.40	inches
RIGHT REAR WEIGHT	862.8	lb			
TOTAL WEIGHT	4009.0	lb			
C.G. LONGITUDINAL	47.96	inches (From Front Axle)			
C.G. LATERAL	-0.87	inches (Negative Towards Driver's Side)			

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	31.8	3.020	-0.014	25.68
Run #3	47.2	4.463	-0.023	25.69
Run #4	31.8	-3.035	0.015	25.78
Run #5	47.2	-4.476	0.025	25.76
AVERAGE C.G. HEIGHT				25.73

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.2126$$

Mercedes-Benz GLE 350 AWD

YEAR: 2021 **DATE TESTED:** 2/10/2021
MAKE: Mercedes-Benz **VIMF TEST NO.:** 7789
MODEL: GLE350
VIN: 4JGFB4KEXMA38#### **Mfg Date:** 12/20
TYPE: SUV **Ride Height:** N/A
LOAD: Driver
ENGINE SIZE AND TYPE: 2.0L I4 Turbo
TRANSMISSION TYPE: 9AT
DRIVE: AWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Sunroof, Roof Rails, Hitch, Running Boards
FRONT TIRE TYPE: Bridgestone Alenza Sport A/S
FRONT TIRE SIZE: 275/50R20 113H
FRONT TIRE PRESSURE: 38
REAR TIRE TYPE: Bridgestone Alenza Sport A/S
REAR TIRE SIZE: 275/50R20 113H
REAR TIRE PRESSURE: 44

FRONT TRACK:	66.0	inches	Track Width Measurements
REAR TRACK:	67.8	inches	Front A 66.05 inches
AVERAGE TRACK:	66.9	inches	B 66.00 inches
WHEELBASE:	117.9	inches	C 66.00 inches
ROOF HEIGHT:	70.2	inches	D 66.05 inches
			Rear E 67.70 inches
GVWR	6437	lb	F 67.90 inches
FRONT GAWR	3020	lb	G 67.70 inches
REAR GAWR	3638	lb	H 67.90 inches
LEFT FRONT WEIGHT	1363.6	lb	Wheelbase Measurements
RIGHT FRONT WEIGHT	1264.2	lb	Left Side 117.90 inches
LEFT REAR WEIGHT	1283.2	lb	Right Side 117.90 inches
RIGHT REAR WEIGHT	1234.0	lb	
TOTAL WEIGHT	5145.0	lb	
C.G. LONGITUDINAL	57.68	inches (From Front Axle)	
C.G. LATERAL	-0.96	inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	32.3	3.459	-0.044	26.60
Run #3	47.5	5.080	-0.067	26.65
Run #4	32.3	-3.431	0.045	26.53
Run #5	47.5	-5.052	0.072	26.57
AVERAGE C.G. HEIGHT				26.59

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.2583$$

Mercedes-Benz GLE 350 RWD

YEAR: 2021	DATE TESTED: 2/23/2021
MAKE: Mercedes-Benz	VIMF TEST NO.: 7803
MODEL: GLE350	
VIN: 4JGFB4JB7MA36####	Mfg Date: 11/20
TYPE: SUV	Ride Height: N/A
LOAD: Driver	
ENGINE SIZE AND TYPE: 2.0L I4 Turbo	
TRANSMISSION TYPE: 9AT	
DRIVE: RWD	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT: Sunroof, Roof Rails, Hitch	
FRONT TIRE TYPE: Michelin Primacy Tour M+S	
FRONT TIRE SIZE: 275/45R21 107H	
FRONT TIRE PRESSURE: 31	
REAR TIRE TYPE: Michelin Primacy Tour M+S	
REAR TIRE SIZE: 315/40R21 111H	
REAR TIRE PRESSURE: 31	

FRONT TRACK: 66.2 inches	Track Width Measurements
REAR TRACK: 67.2 inches	Front A 66.20 inches
AVERAGE TRACK: 66.7 inches	B 66.15 inches
WHEELBASE: 117.9 inches	C 66.15 inches
ROOF HEIGHT: 70.2 inches	D 66.20 inches
	Rear E 67.10 inches
GVWR 6063 lb	F 67.20 inches
FRONT GAWR 2866 lb	G 67.10 inches
REAR GAWR 3417 lb	H 67.20 inches

LEFT FRONT WEIGHT 1278.0 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 1206.9 lb	Left Side 117.90 inches
LEFT REAR WEIGHT 1241.6 lb	Right Side 117.90 inches
RIGHT REAR WEIGHT 1171.8 lb	
TOTAL WEIGHT 4898.3 lb	

C.G. LONGITUDINAL 58.09 inches (From Front Axle)
C.G. LATERAL -0.96 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	31.8	3.535	-0.037	27.19
Run #3	42.3	4.716	-0.056	27.20
Run #4	31.8	-3.450	0.025	27.16
Run #5	42.3	-4.627	0.041	27.21
AVERAGE C.G. HEIGHT				27.19

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.2258$$

Nissan Rogue AWD

YEAR: 2021
MAKE: Nissan
MODEL: Rogue
VIN: JN8AT3BB4MW21####
DATE TESTED: 2/4/2021
VIMF TEST NO.: 7781
Mfg Date: 11/20
TYPE: SUV
LOAD: Driver
ENGINE SIZE AND TYPE: 2.5L I4
TRANSMISSION TYPE: CVT
DRIVE: AWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT:

FRONT TIRE TYPE: Bridgestone Alenza Sport A/S
FRONT TIRE SIZE: 235/60R18 103H
FRONT TIRE PRESSURE: 33
REAR TIRE TYPE: Bridgestone Alenza Sport A/S
REAR TIRE SIZE: 235/60R18 103H
REAR TIRE PRESSURE: 30

FRONT TRACK: 62.2 inches
REAR TRACK: 62.4 inches
AVERAGE TRACK: 62.3 inches
WHEELBASE: 106.4 inches
ROOF HEIGHT: 66.3 inches

Track Width Measurements

Front	A	62.20 inches
	B	62.20 inches
	C	62.25 inches
	D	62.25 inches
Rear	E	62.35 inches
	F	62.50 inches
	G	62.35 inches
	H	62.50 inches

GVWR 4619 lb
FRONT GAWR 2403 lb
REAR GAWR 2326 lb

LEFT FRONT WEIGHT 1111.9 lb
RIGHT FRONT WEIGHT 1036.2 lb
LEFT REAR WEIGHT 803.3 lb
RIGHT REAR WEIGHT 760.9 lb
TOTAL WEIGHT 3712.3 lb

Wheelbase Measurements

Left Side	106.40	inches
Right Side	106.40	inches

C.G. LONGITUDINAL 44.83 inches (From Front Axle)
C.G. LATERAL -0.99 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	37.7	3.599	-0.021	25.75
Run #3	52.9	5.021	-0.032	25.76
Run #4	37.7	-3.593	0.021	25.77
Run #5	52.9	-5.014	0.035	25.76

AVERAGE C.G. HEIGHT 25.76

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.2098

Nissan Rogue FWD

YEAR: 2021
MAKE: Nissan
MODEL: Rogue
VIN: 5N1AT3BA2MC72####
TYPE: SUV
LOAD: Driver
ENGINE SIZE AND TYPE: 2.5L I4
TRANSMISSION TYPE: CVT
DRIVE: FWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT:

DATE TESTED: 2/5/2021
VIMF TEST NO.: 7784
Mfg Date: 1/21
Ride Height: None

FRONT TIRE TYPE: Falken Ziex ZE001A A/S M+S
FRONT TIRE SIZE: 235/60R18 103H
FRONT TIRE PRESSURE: 33
REAR TIRE TYPE: Falken Ziex ZE001A A/S M+S
REAR TIRE SIZE: 235/60R18 103H
REAR TIRE PRESSURE: 30

FRONT TRACK: 62.3 inches
REAR TRACK: 62.4 inches
AVERAGE TRACK: 62.4 inches
WHEELBASE: 106.4 inches
ROOF HEIGHT: 66.0 inches

Track Width Measurements

Location	Measurement	Value	Unit
Front	A	62.40	inches
	B	62.20	inches
	C	62.20	inches
	D	62.40	inches
Rear	E	62.35	inches
	F	62.45	inches
	G	62.35	inches
	H	62.45	inches

GVWR 4486 lb
FRONT GAWR 2359 lb
REAR GAWR 2238 lb

LEFT FRONT WEIGHT 1102.1 lb
RIGHT FRONT WEIGHT 1011.4 lb
LEFT REAR WEIGHT 757.6 lb
RIGHT REAR WEIGHT 735.5 lb
TOTAL WEIGHT 3606.6 lb

Wheelbase Measurements

Side	Measurement	Value	Unit
Left Side	Wheelbase	106.40	inches
Right Side	Wheelbase	106.40	inches

C.G. LONGITUDINAL 44.05 inches (From Front Axle)
C.G. LATERAL -0.97 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	37.7	3.607	-0.022	25.76
Run #3	52.9	5.038	-0.034	25.79
Run #4	37.7	-3.586	0.017	25.81
Run #5	52.9	-5.004	0.027	25.82

AVERAGE C.G. HEIGHT 25.80

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.2086

2020 Tesla Model Y LR AWD

YEAR: 2020 **DATE TESTED:** 10/21/2020
MAKE: Tesla **VIMF TEST NO.:** 7665
MODEL: Model Y Long Range
VIN: 5YJYGDEF7LF04#### **Mfg Date:** 09/20
TYPE: SUV **Ride Height:** None
LOAD: Driver
ENGINE SIZE AND TYPE: Electric
TRANSMISSION TYPE: Auto
DRIVE: AWD
DOORS: 4
FUEL:
OPTIONAL EQUIPMENT:
FRONT TIRE TYPE: Pirelli Pzero Elect
FRONT TIRE SIZE: 255/35R21 98W
FRONT TIRE PRESSURE: 42
REAR TIRE TYPE: Pirelli Pzero Elect
REAR TIRE SIZE: 275/35R21 103W
REAR TIRE PRESSURE: 42

FRONT TRACK: 65.3 inches REAR TRACK: 64.6 inches AVERAGE TRACK: 64.9 inches WHEELBASE: 113.8 inches ROOF HEIGHT: 63.1 inches GVWR: 5302 lb FRONT GAWR: 3004 lb REAR GAWR: 3505 lb LEFT FRONT WEIGHT: 1174.6 lb RIGHT FRONT WEIGHT: 1106.6 lb LEFT REAR WEIGHT: 1153.6 lb RIGHT REAR WEIGHT: 1158.3 lb TOTAL WEIGHT: 4593.1 lb C.G. LONGITUDINAL: 57.28 inches (From Front Axle) C.G. LATERAL: -0.45 inches (Negative Towards Driver's Side)	Track Width Measurements <table border="0"> <tr><td>Front A</td><td>65.20</td><td>inches</td></tr> <tr><td>B</td><td>65.30</td><td>inches</td></tr> <tr><td>C</td><td>65.30</td><td>inches</td></tr> <tr><td>D</td><td>65.20</td><td>inches</td></tr> <tr><td>Rear E</td><td>64.50</td><td>inches</td></tr> <tr><td>F</td><td>64.60</td><td>inches</td></tr> <tr><td>G</td><td>64.50</td><td>inches</td></tr> <tr><td>H</td><td>64.60</td><td>inches</td></tr> </table> Wheelbase Measurements <table border="0"> <tr><td>Left Side</td><td>113.80</td><td>inches</td></tr> <tr><td>Right Side</td><td>113.80</td><td>inches</td></tr> </table>	Front A	65.20	inches	B	65.30	inches	C	65.30	inches	D	65.20	inches	Rear E	64.50	inches	F	64.60	inches	G	64.50	inches	H	64.60	inches	Left Side	113.80	inches	Right Side	113.80	inches
Front A	65.20	inches																													
B	65.30	inches																													
C	65.30	inches																													
D	65.20	inches																													
Rear E	64.50	inches																													
F	64.60	inches																													
G	64.50	inches																													
H	64.60	inches																													
Left Side	113.80	inches																													
Right Side	113.80	inches																													

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	47.6	3.266	-0.022	20.41
Run #3	63.3	4.323	-0.030	20.42
Run #4	47.6	-3.238	0.014	20.47
Run #5	63.3	-4.299	0.023	20.49

AVERAGE C.G. HEIGHT 20.45

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.5871

Tesla Model Y RWD

YEAR: 2021
MAKE: Tesla
MODEL: Model Y
VIN: 5YJYGDED6MF11####
DATE TESTED: 2/25/2021
VIMF TEST NO.: 7807
Mfg Date: 1/21
TYPE: SUV
LOAD: Driver
ENGINE SIZE AND TYPE: Electric
TRANSMISSION TYPE: Auto
DRIVE: RWD
DOORS: 4
FUEL:
OPTIONAL EQUIPMENT:

FRONT TIRE TYPE: Continental Pro Contact Rx M+S
FRONT TIRE SIZE: 255/45R19 104W
FRONT TIRE PRESSURE: 42
REAR TIRE TYPE: Continental Pro Contact Rx M+S
REAR TIRE SIZE: 255/45R19 104W
REAR TIRE PRESSURE: 42

FRONT TRACK: 64.7 inches
REAR TRACK: 64.8 inches
AVERAGE TRACK: 64.8 inches
WHEELBASE: 113.9 inches
ROOF HEIGHT: 63.4 inches

Track Width Measurements

Front A	64.75	inches
B	64.65	inches
C	64.65	inches
D	64.75	inches
Rear E	64.80	inches
F	64.85	inches
G	64.80	inches
H	64.85	inches

GVWR 4779 lb
FRONT GAWR 3004 lb
REAR GAWR 3606 lb

LEFT FRONT WEIGHT 984.2 lb
RIGHT FRONT WEIGHT 898.4 lb
LEFT REAR WEIGHT 1090.7 lb
RIGHT REAR WEIGHT 1109.9 lb
TOTAL WEIGHT 4083.2 lb

Wheelbase Measurements

Left Side	113.90	inches
Right Side	113.90	inches

C.G. LONGITUDINAL 61.39 inches (From Front Axle)
C.G. LATERAL -0.53 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	42.3	3.237	-0.018	21.93
Run #3	57.8	4.404	-0.026	21.97
Run #4	42.3	-3.228	0.015	21.98
Run #5	57.8	-4.384	0.023	21.99

AVERAGE C.G. HEIGHT 21.97

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.4740

Toyota Prius Prime FWD

YEAR: 2021	DATE TESTED: 4/15/2021
MAKE: Toyota	VIMF TEST NO.: 7845
MODEL: Prius Prime	
VIN: JTDKAMFP6M318####	Mfg Date: 1/21
TYPE: Sedan	Ride Height:
LOAD: Driver	
ENGINE SIZE AND TYPE: 1.8L I4 Hybrid	
TRANSMISSION TYPE: Auto	
DRIVE: FWD	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT:	
FRONT TIRE TYPE: Toyo NanoEnergy A41 M+S	
FRONT TIRE SIZE: 195/65R15 91S	
FRONT TIRE PRESSURE: 36	
REAR TIRE TYPE: Toyo NanoEnergy A41 M+S	
REAR TIRE SIZE: 195/65R15 91S	
REAR TIRE PRESSURE: 35	
FRONT TRACK: 60.3 inches	Track Width Measurements
REAR TRACK: 60.6 inches	Front A 60.35 inches
AVERAGE TRACK: 60.5 inches	B 60.30 inches
WHEELBASE: 106.6 inches	C 60.30 inches
ROOF HEIGHT: 57.0 inches	D 60.35 inches
	Rear E 60.50 inches
GVWR 4255 lb	F 60.75 inches
FRONT GAWR 2330 lb	G 60.50 inches
REAR GAWR 2240 lb	H 60.75 inches
LEFT FRONT WEIGHT 1053.6 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 945.3 lb	Left Side 106.60 inches
LEFT REAR WEIGHT 824.8 lb	Right Side 106.60 inches
RIGHT REAR WEIGHT 779.8 lb	
TOTAL WEIGHT 3603.5 lb	
C.G. LONGITUDINAL 47.47 inches (From Front Axle)	
C.G. LATERAL -1.29 inches (Negative Towards Driver's Side)	

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	42.8	3.263	-0.021	21.29
Run #3	58.1	4.402	-0.030	21.29
Run #4	42.8	-3.257	0.024	21.29
Run #5	58.1	-4.400	0.034	21.32
AVERAGE C.G. HEIGHT				21.30

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.4198$$

Toyota Sienna Hybrid AWD

YEAR: 2021 **DATE TESTED:** 1/15/2021
MAKE: Toyota **VIMF TEST NO.:** 7742
MODEL: Sienna
VIN: 5TDYSKFC5MS00#### **Mfg Date:** 12/20
TYPE: Van **Ride Height:** None
LOAD: Driver
ENGINE SIZE AND TYPE: 2.5L I4 Hybrid
TRANSMISSION TYPE: CVT
DRIVE: AWD
DOORS: 4
FUEL: Full
OPTIONAL EQUIPMENT: Sunroof
FRONT TIRE TYPE: Falken Ziex ZE001A A/S M+S
FRONT TIRE SIZE: P235/65R17 103T
FRONT TIRE PRESSURE: 35
REAR TIRE TYPE: Falken Ziex ZE001A A/S M+S
REAR TIRE SIZE: P235/65R17 103T
REAR TIRE PRESSURE: 35

FRONT TRACK:	68.0	inches	Track Width Measurements
REAR TRACK:	68.0	inches	Front A 68.00 inches
AVERAGE TRACK:	68.0	inches	B 68.00 inches
WHEELBASE:	120.8	inches	C 68.00 inches
ROOF HEIGHT:	68.2	inches	D 68.00 inches
			Rear E 68.00 inches
GVWR	6170	lb	F 68.10 inches
FRONT GAWR	3505	lb	G 68.00 inches
REAR GAWR	3505	lb	H 68.00 inches

LEFT FRONT WEIGHT	1370.9	lb	Wheelbase Measurements
RIGHT FRONT WEIGHT	1267.2	lb	Left Side 120.80 inches
LEFT REAR WEIGHT	1137.7	lb	Right Side 120.80 inches
RIGHT REAR WEIGHT	1120.4	lb	
TOTAL WEIGHT	4896.2	lb	

C.G. LONGITUDINAL 55.71 inches (From Front Axle)
C.G. LATERAL -0.84 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	37.7	3.508	-0.022	25.26
Run #3	53.0	4.873	-0.032	25.21
Run #4	37.7	-3.507	0.019	25.38
Run #5	53.0	-4.915	0.030	25.40
AVERAGE C.G. HEIGHT				25.31

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

$$T/2h = 1.3435$$

Toyota Sienna Hybrid FWD

YEAR: 2021	DATE TESTED: 1/15/2021
MAKE: Toyota	VIMF TEST NO.: 7744
MODEL: Sienna	
VIN: 5TDDRKEC2MS00####	Mfg Date: 12/20
TYPE: Van	Ride Height: None
LOAD: Driver	
ENGINE SIZE AND TYPE: 2.5L I4 Hybrid	
TRANSMISSION TYPE: CVT	
DRIVE: FWD	
DOORS: 4	
FUEL: Full	
OPTIONAL EQUIPMENT: Sunroof	
FRONT TIRE TYPE: Michelin Primacy A/S M+S	
FRONT TIRE SIZE: 235/50R20 100V	
FRONT TIRE PRESSURE: 36	
REAR TIRE TYPE: Michelin Primacy A/S M+S	
REAR TIRE SIZE: 235/50R20 100V	
REAR TIRE PRESSURE: 36	

FRONT TRACK: 68.2 inches	Track Width Measurements
REAR TRACK: 68.2 inches	Front A 68.20 inches
AVERAGE TRACK: 68.2 inches	B 68.15 inches
WHEELBASE: 120.8 inches	C 68.15 inches
ROOF HEIGHT: 68.5 inches	D 68.20 inches
	Rear E 68.20 inches
	F 68.20 inches
	G 68.20 inches
	H 68.20 inches

GVWR 6170 lb	
FRONT GAWR 3505 lb	
REAR GAWR 3505 lb	

LEFT FRONT WEIGHT 1398.0 lb	Wheelbase Measurements
RIGHT FRONT WEIGHT 1275.0 lb	Left Side 120.80 inches
LEFT REAR WEIGHT 1083.1 lb	Right Side 120.80 inches
RIGHT REAR WEIGHT 1083.4 lb	
TOTAL WEIGHT 4839.5 lb	

C.G. LONGITUDINAL 54.08 inches (From Front Axle)
C.G. LATERAL -0.86 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	32.0	3.208	-0.022	26.12
Run #3	42.4	4.219	-0.028	26.12
Run #4	32.0	-3.195	0.018	26.18
Run #5	42.4	-4.214	0.026	26.18

AVERAGE C.G. HEIGHT 26.15

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.3038

Volkswagen ID.4 AWD

YEAR: 2021
MAKE: Volkswagen
MODEL: ID.4
VIN: WVGJNPE23MP06####

DATE TESTED: 2/22/2022
VIMF TEST NO.: 8092
Mfg Date: 12/21

TYPE SUV
LOAD: Driver
ENGINE SIZE AND TYPE: Electric
TRANSMISSION TYPE: Auto
DRIVE: AWD
DOORS: 4
FUEL: Electric
OPTIONAL EQUIPMENT: Hitch

Ride Height: N/A

FRONT TIRE TYPE: Hankook Kinergy AS X EV M+S
FRONT TIRE SIZE: 235/55R19 105T
FRONT TIRE PRESSURE: 44
REAR TIRE TYPE: Hankook Kinergy AS X EV M+S
REAR TIRE SIZE: 255/50R19 107T
REAR TIRE PRESSURE: 44

FRONT TRACK: 62.3 inches
REAR TRACK: 61.3 inches
AVERAGE TRACK: 61.8 inches
WHEELBASE: 108.9 inches
ROOF HEIGHT: 63.8 inches

Track Width Measurements

Front A	62.25	inches
B	62.25	inches
C	62.25	inches
D	62.25	inches
Rear E	61.25	inches
F	61.25	inches
G	61.25	inches
H	61.25	inches

GVWR 5864 lb
FRONT GAWR 2646 lb
REAR GAWR 3329 lb

LEFT FRONT WEIGHT 1229.9 lb
RIGHT FRONT WEIGHT 1192.7 lb
LEFT REAR WEIGHT 1298.1 lb
RIGHT REAR WEIGHT 1252.6 lb
TOTAL WEIGHT 4973.3 lb

Wheelbase Measurements

Left Side	108.80	inches
Right Side	108.90	inches

C.G. LONGITUDINAL 55.83 inches (From Front Axle)
C.G. LATERAL -0.51 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	40.9	3.008	-0.030	21.79
Run #3	61.6	4.507	-0.047	21.82
Run #4	40.9	-2.974	0.019	21.86
Run #5	61.6	-4.462	0.033	21.88

AVERAGE C.G. HEIGHT 21.84

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.4139

Volkswagen ID.4 RWD

YEAR: 2021
 MAKE: Volkswagen
 MODEL: ID.4
 VIN: WVGRMPE23MP03####

DATE TESTED: 6/15/2021
 VIMF TEST NO.: 7907

Mfg Date: 04/21

TYPE SUV
 LOAD: Driver
 ENGINE SIZE AND TYPE: Electric
 TRANSMISSION TYPE: Auto
 DRIVE: RWD
 DOORS: 4
 FUEL:
 OPTIONAL EQUIPMENT:

Ride Height: N/A

FRONT TIRE TYPE: Hankook Kinergy AS X
 FRONT TIRE SIZE: 235/55R19 105T
 FRONT TIRE PRESSURE: 42
 REAR TIRE TYPE: Hankook Kinergy AS X
 REAR TIRE SIZE: 255/50R19 107T
 REAR TIRE PRESSURE: 42

FRONT TRACK: 62.2 inches
 REAR TRACK: 61.8 inches
 AVERAGE TRACK: 62.0 inches
 WHEELBASE: 109.1 inches
 ROOF HEIGHT: 63.1 inches

Track Width Measurements

Location	Measurement	Unit
Front	A	62.20 inches
	B	62.10 inches
	C	62.15 inches
	D	62.25 inches
Rear	E	61.75 inches
	F	61.80 inches
	G	61.75 inches
	H	61.80 inches

GVWR 5644 lb
 FRONT GAWR 2491 lb
 REAR GAWR 3263 lb

LEFT FRONT WEIGHT 1166.9 lb
 RIGHT FRONT WEIGHT 1092.2 lb
 LEFT REAR WEIGHT 1250.6 lb
 RIGHT REAR WEIGHT 1240.9 lb
 TOTAL WEIGHT 4750.6 lb

Wheelbase Measurements

Side	Measurement	Unit
Left Side	109.10 inches	
Right Side	109.10 inches	

C.G. LONGITUDINAL 57.22 inches (From Front Axle)
 C.G. LATERAL -0.55 inches (Negative Towards Driver's Side)

VIMF C.G. HEIGHT MEASUREMENT RESULTS

	Applied Weight (lb)	Platform Angle (deg)	Relative Motion (inches)	C.G. Height (inches)
Run #1	0.0	0.000	0.000	0.00
Run #2	45.8	3.376	-0.042	21.49
Run #3	61.0	4.472	-0.057	21.48
Run #4	45.8	-3.346	0.036	21.49
Run #5	61.0	-4.428	0.051	21.45

AVERAGE C.G. HEIGHT 21.48

$$T/(2 \times H) = \text{AVERAGE TRACK}/(2 \times \text{AVERAGE C.G. HEIGHT})$$

T/2h 1.4426

Appendix D

Test Vehicle Photos



2021 Acura TLX FWD



2021 BMW 330i AWD



2021 Buick Envision AWD



2021 Buick Envision FWD



2021 Chevrolet Tahoe 4WD



2021 Chevrolet Tahoe 2WD



2021 Ford Bronco 4WD



2021 Ford Bronco Sport 4WD



2021 Ford F-150 Crew Cab Hybrid 4X4



2021 Ford F-150 Crew Cab Hybrid 4X2



2021 Ford F-150 Extended Cab 4X4



2021 Ford F-150 Extended Cab 4X2



2021 Ford F-250 Tremor Crew Cab 4X4



2021 Ford Mustang Mach-E BEV AWD



2021 Ford Mustang Mach-E BEV RWD



2021 Ford Transit 350 High Roof 15 Passenger AWD



2021 Ford Transit 350 High Roof 12 Passenger AWD



2021 Genesis G80 RWD



2021 Genesis GV80 AWD



2021 Genesis GV80 RWD



2021 Hyundai Elantra FWD



2021 Kia K5 FWD



2021 Kia Sorento AWD



2021 Kia Sorento FWD



2021 Mercedes-Benz GLB 250 AWD



2021 Mercedes-Benz GLB 250 FWD



2021 Mercedes-Benz GLE 350 AWD



2021 Mercedes-Benz GLE 350 RWD



2021 Nissan Rogue AWD



2021 Nissan Rogue FWD



2020 Tesla Model Y Long Range AWD



2021 Tesla Model Y RWD



2021 Toyota Prius Prime FWD



2021 Toyota Sienna Hybrid AWD



2021 Toyota Sienna Hybrid FWD



2021 Volkswagen ID.4 BEV AWD



2021 Volkswagen ID.4 BEV RWD