Test Report

MESILLA VALLEY TRANSPORTATION SOLUTIONS
CERTIFIED
Fuel Economy Experts

Michelin Energy Guard Trailer Skirts

(28-ft Double Trailers)

MVT SOLUTIONS CERTIFIED™ FUEL ECONOMY TEST

June 2021

7.00 gal/1000 miles	0.55 MPG	6.02%

1.0: INTRODUCTION

Mesilla Valley Transportation Solutions ("MVTS" or "MVT Solutions") certifies the fuel savings described in this report. **Note:** this report was designed for carriers and providing information relevant to their needs. Therefore, the format varies from traditional fuel economy and technical reports. The Report Summary provides the reader a quick synopsis of the fuel savings. Following the Summary is the body of the report and further details on the subjects. This fuel economy test was performed using MVTS proprietary fuel economy test methods. These test methods were developed from race car engineering and advanced vehicle test methods, which the Mesilla Valley Transportation ("fleet" or "MVT") has relied on since 2012 to identify substantial fuel savings. The MVTS methods provide highly accurate and reliable answers on real-world fuel savings in comparison to other test methods, which enables carriers to make the best decisions for their company. Contact MVTS with any questions regarding the product or test. As part of an MVTS Certified™ test, MVTS supports product inquiries, which we encourage carriers to utilize.

Note: blue text indicates a link to the topic. Click to follow. Alt + ← returns the reader to the initial location.

2.0: TEST SUMMARY

The Michelin Energy Guard (MEG) trailer skirts were tested on double 28-ft dry van trailers. The fuel economy improvement of the **Michelin Energy Guard (MEG) trailer skirts was 7.00 gal/1000 miles (6.02%).**

Testing was conducted on a 9-mile test track at 65 miles per hour and a Gross Vehicle Weight (GVW) of approximately 39,000 lbs. Vehicles were modern Class-8 single axle day cabs (SADC) with double 28-ft dry van trailers. Test results can be found below in Table 1.

Table 1: Results Summary

Product	Fuel Economy Improvement		
	Gal/1000 miles	MPG	Percent
MEG Skirts	7.00	0.55	6.02%

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3.0: TEST PROCEDURE

The two (2) vehicles ran simultaneously at 65 mph on the 9-mile circle track near Pecos, Texas. The vehicles were 1-minute apart, avoiding any aerodynamic influence on either vehicle during testing. The vehicles were termed “Compare Vehicle” and “Test Vehicle”. The Compare Vehicle remained unchanged throughout testing, it was used solely for comparison. The Test Vehicle had modifications made during the test (*i.e.* Michelin technologies installed).

The test procedure may appear similar to the SAE J1321 method traditionally used in the trucking industry; however, the MVTS methods are a much more advanced and precise form of on-road and track testing. The vehicles are equipped with sensors and data recording systems that collect data on fuel consumption, aerodynamics, rolling resistance, driver behavior and many other variables that affect fuel consumption. The data is analyzed using MVTS proprietary methods, which provide very accurate answers on fuel savings. Additionally, the test results can be scientifically translated to a carrier’s real-world daily operations and long-term savings, which is a feature unique to these methods. Overall, the MVTS test methods are a much more advanced and reliable tool for predicting fuel savings than the trucking industry has used previously.

3.1: TEST VEHICLES

Test vehicles were 2018 and 2021 International LT Single Axle Day Cabs (SADC) with Cummins X15 15-Liter engines. Trailers were 28-ft dry vans. Gross Vehicle Weight (GVW) was approximately 39,000 lbs. Both trucks were equipped with Ex-Guard grill guards, which were previously tested and showed no negative influence on fuel consumption. The Compare vehicle remained unchanged throughout all tests. The Test vehicle configuration was changed between test runs. Trucks and trailers used dual tires. Tire pressures were set at 110 psi in the morning, prior to incurring any effect of daytime heat. Vehicle info can be found in the Appendix.

Vehicles were thoroughly inspected and received regular maintenance prior to testing. It should also be noted, for the reader's peace of mind, Mesilla Valley Transportation (MVT) and MVT Solutions are 100% confident in the reliable condition of the test vehicles. **Note:** MVT fleet does not operate 28-ft dry van trailers; however, the same detail went into each test and MVTS Elite Fleets consider the same test results for their decisions.

Figure 1: Test Vehicle (A) and Compare Vehicle (B) with Trailers

Figure 2: Test Trailers

Table 2: Test Runs

Run	Test Name/Description	Start	End
2	MEG Skirts	10:30 AM	12:09 PM
3	Baseline	12:22 PM	2:01 PM

3.2: MICHELIN ENERGY GUARD (MEG) TRAILER SKIRTS

Run 2 consisted of testing the MEG trailer skirts. Solid mud flaps were on the truck, trailers, and trailer dolly. Comparing Run 2 and Run 3 provided the fuel economy value for the trailer skirts.

Figure 3: MEG Trailer Skirts

3.3: BASELINE (NO TRAILER AERODYNAMICS)

Run 3 consisted of removing the MEG trailer skirts, which left the trailer with no aerodynamic components. This run served as the baseline for which to compare the MEG trailer skirts to.

Figure 4: MEG Trailer Skirts Removed

4.0: VEHICLE FUEL ECONOMY TEST EQUIPMENT

MVT Solutions fuel economy testing utilizes a data acquisition system and sensors specifically for this testing. This style of testing is derived from race car engineering where reliable sensor data is critical to understanding vehicle modifications.

MVTS test sensors include:

- Data acquisition system (records sensor data)
- Fuel flow meter (accurate to 0.2%)
- Fuel temperature sensor
- Tire temperature sensor (infrared, mounted on left-front drive tire)
- Ground/road temperature sensor (infrared, mounted ahead of left-front drive tire)
- Wind speed air pressure sensor (truck hood)
- Wind direction sensor (truck hood)
- Ambient air temperature sensor (truck hood)
- Ambient air pressure sensor (truck cab)
- High Precision GPS (latitude, longitude, altitude, time)

Click this link to see a video of MVTS sensors and testing: How We Test

Figure 5: Aerodynamic Sensors

Figure 6: Data Acquisition System

Figure 7: Fuel Flow Meter

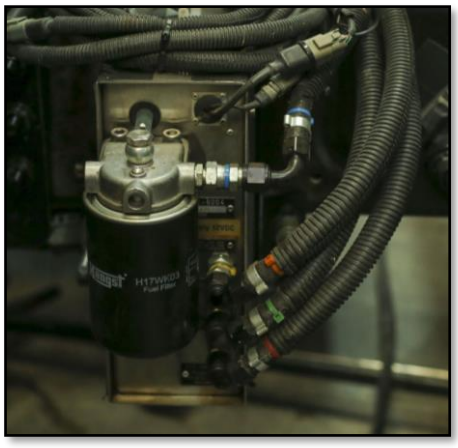


Figure 8: Tire Temp. Sensor

5.0: TEST RESULTS

Testing showed the Michelin Energy Guard (MEG) trailer skirts saved 7.00 gal/1000 miles (6.02%). These are significant fuel savings that should interest any fleet running double trailer configurations.

Test results with accuracy are shown below in Table 3. Bar graphs are shown in gal/1000 miles and percent fuel savings in Figure 9 and Figure 10, respectively.

Table 3: Test Results with Accuracy

Product	Fuel Economy Improvement		
	Gal/1000 miles	MPG	Percent
MEG Skirts	**7.00**	0.55	6.02%
Accuracy	**+/- 1.12**	+/- 0.08	+/- 0.96%

Figure 9: Test Results (gal/1000 miles)

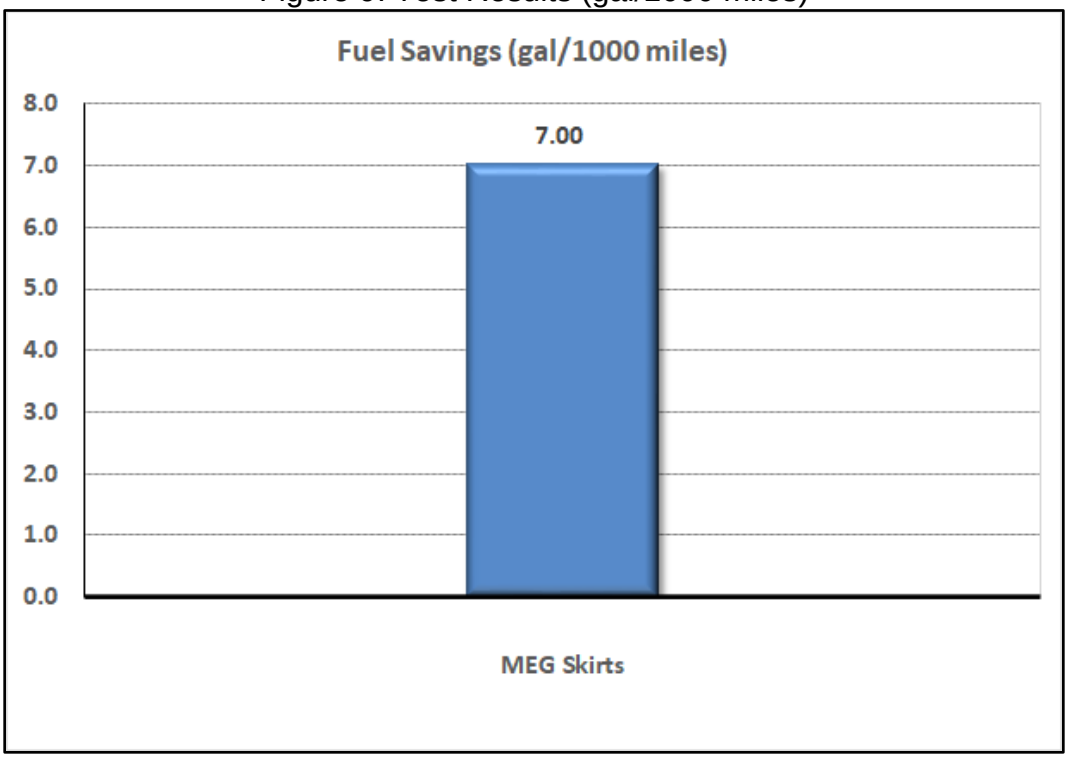
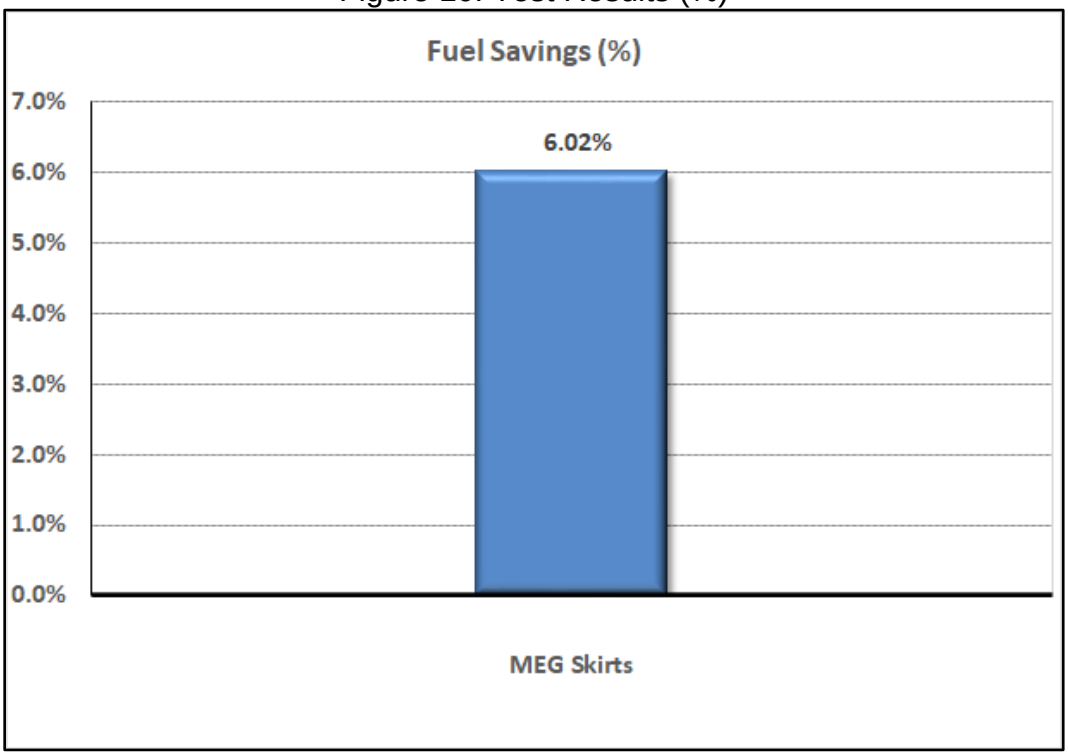


Figure 10: Test Results (%)



5.1: UNITS OF MEASUREMENT

The reader may not be familiar with units of gal/1000 miles (gallons per 1000 miles) since it is not traditionally used in the trucking industry. The following paragraphs briefly explain the reasons for these units and how they help carriers better calculate fuel savings.

Units of gal/1000 miles more reliably calculate fuel savings when compared to other units such as miles-per-gallon (MPG) and percent (%). Those units are prone to error from changing variables such as vehicle baseline fuel economy, load, driver behavior, and duty cycle. For example, gal/1000 miles values are not affected by load for an aerodynamic product. Any empty Class-8 unit at 34,000 lbs. will save the same fuel in gal/1000 miles as one loaded to 80,000 lbs. However, when viewed in percent (%) or MPG the values change with load. This causes a carrier to experience varied results in real-world operation and difficulty predicting the financial benefits of the product unless units of gal/1000 miles are used.

Units of gal/1000 miles are the most reliable units of measurement for aerodynamic fuel savings due to their scientific and mathematical relationship to fuel consumption. Further detail is beyond the scope of this report and the reader is encouraged to contact MVT Solutions if more information is desired.

5.2: WEATHER CONDITIONS SUMMARY

Ambient temperature during testing ranged from 79°F to 91°F with winds ranging from 0-9 mph. Weather data was acquired from a local Weather Underground weather station and complete data can be found in the Appendix.

The reader should be aware that MVTS methods include instantaneous and constant weather data acquisition on each vehicle, and this testing has minimal dependency on external weather data collection. MVTS test data accounts for changes in wind, temperature, and other pertinent variables instantaneously.

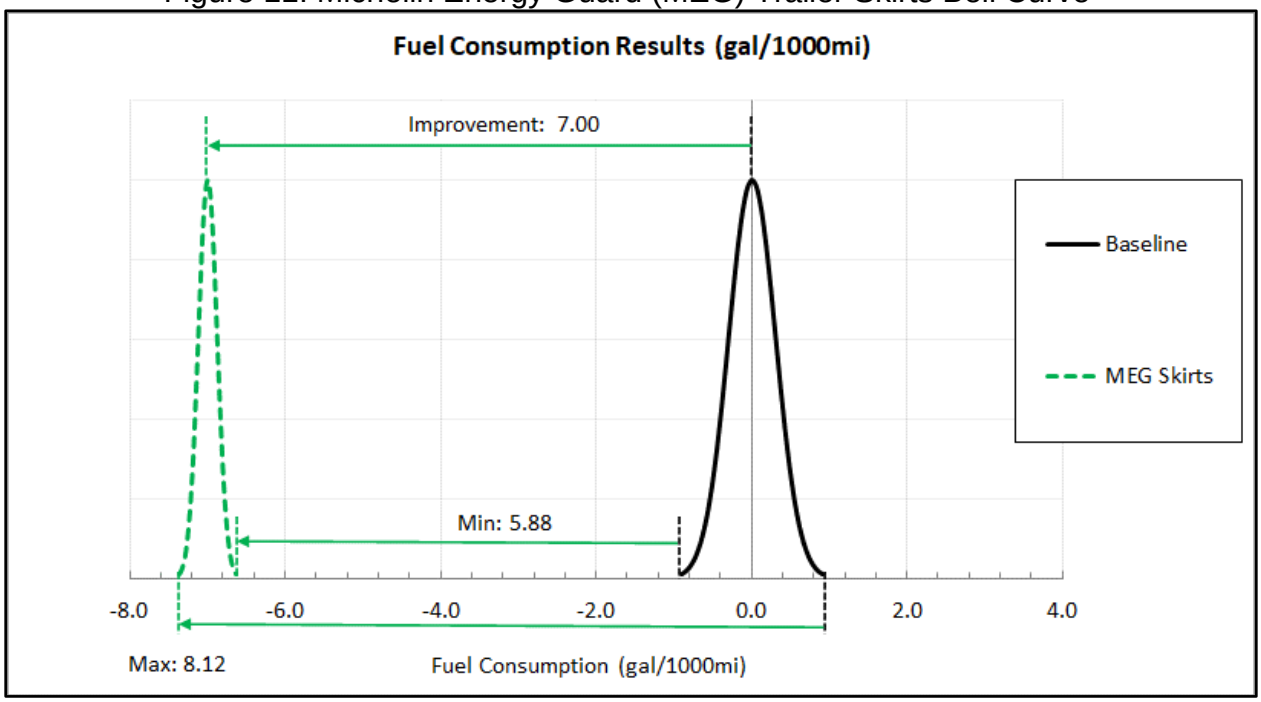
5.3: MEASUREMENT ACCURACY

The accuracy of fuel economy measurements is critical in determining the trustworthiness of test results. Historically, this has been a major difficulty in the trucking industry with fuel economy testing, which has led to confusion and misleading results. The MVTS test methods overcome this issue by achieving better accuracy, which is one of the ways it provides more reliable test results.

Accuracy for all the tests was calculated using a 95% confidence interval, a common standard for testing measurement. 95% confidence interval indicates that if the test were repeated 100 times, values would fall within the range in 95 out of the 100 tests (*i.e.* the reader would be 95% confident the value would be within that range).

Figure 11 below illustrates the statistical bell curves of the MEG trailer skirts installed on the double trailer configuration. The arrow pointing to the left illustrates less fuel used with the MEG trailer skirts installed (*i.e*. fuel savings). The test result average was 7.00 gal/1000 miles saved. Minimum and maximum values were calculated as the test result plus or minus the accuracy values (7.00 +/- 1.12), which were 5.88 and 8.12 gal/1000 miles.

Figure 11: Michelin Energy Guard (MEG) Trailer Skirts Bell Curve



6.0: SAVINGS CALCULATIONS

Below is a brief outline of how to use the test results to calculate savings. For more detail or assistance contact MVT Solutions.

6.1: FUEL SAVINGS CALCULATIONS

Fuel savings resulting from this test can be calculated as follows:

$$Fuel\ Savings\ (gal/year) = (Test\ result)\ x\ \frac{(Thousands\ of\ miles\ travelled\ per\ year)}{1000}$$

Test result must be in units of gal/1000 miles (*i.e.* not percent or MPG)

Example: Michelin Energy Guard (MEG) trailer skirts with fuel savings of 7.00 gal/1000 miles and 125,000 miles travelled annually:

$$Fuel\ Savings = (7.00\ gal/1000\ miles)x\ \frac{(125{,}000\ miles/year)}{1000} = 875\ gal/year$$

Therefore, the MEG trailer skirts when installed on double 28-ft dry van trailers would save 875 gallons of fuel per year for this vehicle travelling 125,000 miles.

6.2: FINANCIAL SAVINGS CALCULATIONS

Financial calculations can be made by multiplying the fuel saved by the fuel price:

$$Savings\ (\$/year) = (Fuel\ Savings)\ x\ (Price\ of\ fuel)$$

Example: Using the example above and U.S. average retail price of diesel fuel in 2020, $2.551[1] /gal

$Savings\ (\$/year) = \left(875\ \frac{gal}{year}\right)\ x\ \left(\frac{\$2.551}{gal}\right) = \$2{,}233\ /year$ in fuel savings

Therefore, the MEG trailer skirts when installed on double 28-ft dry van trailers would save $2,233 per year in fuel for the vehicle travelling 125,000 miles.

[1] Source: https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=EMD_EPD2DXL0_PTE_NUS_DPG&f=W

6.3: TECHNOLOGY PAYBACK AND RETURN-ON-INVESTMENT

Buyers of fuel economy technologies are highly interested in saving money. For a technology supplier to be successful, their technology must save their potential customers money and many fleets consider the number of months required for the technology to pay for itself as a buying qualification, which is referred to as 'payback' in trucking or sometimes ROI.

$$Payback\ (months) = \frac{(Product\ cost)}{(Savings\ (\$/year)}\ x\ (12\ months/year)$$

Example @$750 Product cost, 4:1 trailer to tractor ratio: **Note**: The Product Cost is fictitious and used only for example purposes. Contact a Michelin sales representative or trailer OEM for pricing.

$$Payback\ (months) = \frac{4x\ (\$750)}{(\$2{,}233\ /year)}\ x\ \left(12\frac{months}{year}\right) = 16.1\ months$$

Note: '4x' is used in the Product Cost to account for a 4:1 trailer ratio.

Therefore, with a Product Cost of $750 and 4:1 trailer ratio, the MEG trailer skirts when installed on double 28-ft dry van trailers would pay for itself (*i.e.* payback or ROI) in 16.1 months.

6.4: TECHNOLOGY PROFIT

Since saving money is the end goal, calculating profit is another important factor. **Note**: these calculations will consider fuel and purchase price only and not maintenance.

$$Profit\ (\$) = (Savings) - (Cost)$$

Example @$750 Product cost, 4:1 trailer ratio: Using annual values from above and a 10 year trailer life.

$$Profit\ (\$) = (\$2{,}233) - \frac{4x\ (\$750)}{10\ year} = \$1{,}933\ saved\ per\ year, per\ vehicle$$

If this were translated to a 1000-truck fleet, the profits would be $1.933M annually.

Therefore, the MEG trailer skirts when installed on double 28-ft dry van trailers would add $1,933 in profit per tractor when travelling 125,000 miles per year. For a fleet of 1000 vehicles, this would equate to $1.933M.

6.5: CO_2 Reduction Calculations

Carbon Dioxide (CO_2) is directly related to diesel fuel consumption in the amount of 10,180[2] grams CO_2 per gallon of diesel consumed (0.01018 metric tons CO_2 per gallon of diesel). Therefore, the same value applies to the amount of fuel saved and correlates to a reduction in CO_2.

$$CO_2\ Reduction\ (metric\ tons) = (Fuel\ Savings)\ x\ (0.01018\ metric\ tons)$$

Where:

- Fuel Savings must be measured in gallons
- 0.01018 metric tons is the amount of CO_2 resulting from one gallon of diesel fuel

Example: Using a fuel savings of 875 gallons per year (6.1:).

$CO_2\ Reduction\ (metric\ tons) = (875)\ x\ (0.01018\ metric\ tons)$ = 8.9 metric tons CO_2

Therefore, the Michelin Energy Guard trailer skirts would save 8.9 metric tons of CO_2 per year for this vehicle travelling 125,000 miles.

7.0: Conclusion

The fuel savings of the MEG trailer skirts was 7.00 gal/1000 miles (6.02%). In terms of profit, the Michelin Energy Guard (MEG) trailer skirts on double 28-ft dry van trailers would save $1,933 annually per tractor with a Return-On-Investment of 16.1 months using the example product cost from section (6.3:). This correlates to the fleet operating four (4) trailers per tractor, in which the tractor travels 125,000 miles annually.

Fleets can contact MVTS with any questions.

[2] https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references

8.0: APPENDIX

8.1: TEST VEHICLE DETAILS

Figure 12: Vehicle Info, Modified (Test) Vehicle

Date	June 15, 2021					
Company	Saia LTL					
Location	Pecos, Texas					
Test Route	Pecos 9-mile Test Track					
TRUCK ID:	**Veh. A, 224092**					
Brand	International					
Date of Manufacture	02/2021					
Model	LT Day Cab SA					
Engine	Cummins X15					
VIN	3HSDYAPN9NN154620					
Mileage (miles):	2,321					
Transmission	N/A					
Rear Gear	N/A					
Fuel Load	Full					
Fuel Type & Batch	No. 2 Diesel					
Axle Weights	10,200	11440	7,980	9540		
Total weight	39,160					

Figure 13: Trailer Info, Modified (Test) Vehicle

TRAILER ID:	A, 292259
Model	Wabash
VIN	1JJV281D9KL133512
Date of Manufacture	07/2018
Model	Dry Van, TRA REM VAN DVDBHPC
Size	28-ft
Tractor to Trailer Gap	27 inches
Add-ons	Michelin Energy Guard Skirts
28-ft double trailer configuration	

TRAILER ID:	292776
Model	Hyundai
VIN	3H3V281C7LT403197
Date of Manufacture	02/2021
Model	VC2280141-FJPRW
Size	28-ft
Trailer to Trailer Gap	48 inches
Add-ons	Michelin Energy Guard Skirts
28-ft double trailer configuration	

Figure 14: Tire Info, Modified (Test) Vehicle

		Truck	**Veh. A, 224092**		
LF:		**Front Axle Tires**			RF: Same
Bridgestone R284		Type			Bridgestone R284
295/75R22.5		Size			295/75R22.5
17/32		Tread Depth (inches)			18/32
110		Pressure (psi)			110
LF-Outer Drive:	LF-Inner Drive:	**Drive Axle Tires**		RF-Inner Drive:	RF-Outer Drive
Michelin X Line XDA Energy +	Michelin X Line XDA Energy +	Type		Michelin X Line XDA Energy +	Michelin X Line XDA Energy +
275/80R22.5	275/80R22.5	Size		275/80R22.5	275/80R22.5
19/32	19/32	Tread Depth (inches)		19/32	19/32
110	110	Pressure (psi)		110	110
		Trailer	**A, 292259**		
LR-Outer Trailer:	LR-Inner Trailer:	**Tandem Rear**		RR-Inner Trailer	RR-Outer Trailer
Continental Eco Plus HS3	Continental Eco Plus HS3	Type		Bridgestone R123	Bridgestone R123
295/75R22.5	295/75R22.5	Size		295/75R22.5	295/75R22.5
9/32	8/32	Tread Depth (inches)		9/32	11/32
110	110	Pressure (psi)		110	110
		Trailer	**292776**		
LF-Outer Trailer:	LF-Inner Trailer:	**Tandem Front**		RF-Inner Trailer	RF-Outer Trailer
Bridgestone R123	Bridgestone R123	Type		Bridgestone R123	Continental HDR2
295/75R22.5	295/75R22.5	Size		295/75R22.5	295/75R22.5
11/32	11/32	Tread Depth (inches)		10/32	10/32
110	110	Pressure (psi)		110	110
LR-Outer Trailer:	LR-Inner Trailer:	**Tandem Rear**		RR-Inner Trailer	RR-Outer Trailer
Bridgestone R197	Bridgestone R197	Type		Bridgestone R197	Bridgestone R197
295/75R22.5	295/75R22.5	Size		295/75R22.5	295/75R22.5
7/32	6/32	Tread Depth (inches)		9/32	8/32
110	110	Pressure (psi)		110	110

8.2: COMPARE VEHICLE DETAILS

Figure 15: Vehicle Info, Compare Vehicle

Date	June 15, 2021					
Company	Saia LTL					
Location	Pecos, Texas					
Test Route	Pecos 9-mile Test Track					
TRUCK ID:	**Veh. B, 204534**					
Brand	International					
Date of Manufacture	12/2018					
Model	LT Day Cab SA					
Engine	Cummins X15					
VIN	3HSDYAPN7LN806843					
Mileage (miles):	284,576					
Transmission	N/A					
Rear Gear	N/A					
Fuel Load	Full					
Fuel Type & Batch	No. 2 Diesel					
Axle Weights	10,200	11440	7,980	9540		
Total weight	39,160					

Figure 16: Trailer Info, Compare Vehicle

TRAILER ID:	B, 292250
Model	Wabash
VIN	1JJV281D8KL133503
Date of Manufacture	07/2018
Model	Dry Van, TRA REM VAN DVDBHPC
Size	28-ft
Tractor to Trailer Gap	27 inches
Add-ons	Transtex Aero System
	Transtex Aero Mud Flaps
28-ft double trailer configuration	

TRAILER ID:	290720
Model	Great Dane
VIN	1GRAP5612HK269054
Date of Manufacture	01/2016
Model	CCP-3311-02028
Size	28-ft
Trailer to Trailer Gap	48 inches
Add-ons	Transtex Aero System
	Transtex Aero Mud Flaps
28-ft double trailer configuration	

Figure 17: Tire Info, Compare Vehicle

		Truck	**Veh. B, 204534**		
LF:		**Front Axle Tires**			RF: Same
Bridgestone R284		Type			Bridgestone R284
295/75R22.5		Size			295/75R22.5
17/32		Tread Depth (inches)			18/32
110		Pressure (psi)			110
LF-Outer Drive:	LF-Inner Drive:	**Drive Axle Tires**		RF-Inner Drive:	RF-Outer Drive
Michelin X Line XDA Energy +	Michelin X Line XDA Energy +	Type		Michelin X Line XDA Energy +	Michelin X Line XDA Energy +
275/80R22.5	275/80R22.5	Size		275/80R22.5	275/80R22.5
19/32	19/32	Tread Depth (inches)		19/32	19/32
110	110	Pressure (psi)		110	110
		Trailer	**B, 292250**		
LR-Outer Trailer:	LR-Inner Trailer:	**Tandem Rear**		RR-Inner Trailer	RR-Outer Trailer
Bridgestone R123	Bridgestone R123	Type		Bridgestone R123	Bridgestone R123
295/75R22.5	295/75R22.5	Size		295/75R22.5	295/75R22.5
9/32	8/32	Tread Depth (inches)		9/32	11/32
110	110	Pressure (psi)		110	110
		Trailer	**290720**		
LF-Outer Trailer:	LF-Inner Trailer:	**Tandem Front**		RF-Inner Trailer	RF-Outer Trailer
Continental EcoPlus HT3	Continental EcoPlus HT3	Type		Continental EcoPlus HT3	Continental HDR2
295/75R22.5	295/75R22.5	Size		295/75R22.5	295/75R22.5
9/32	8/32	Tread Depth (inches)		10/32	10/32
110	110	Pressure (psi)		110	110
LR-Outer Trailer:	LR-Inner Trailer:	**Tandem Rear**		RR-Inner Trailer	RR-Outer Trailer
Bridgestone R197	Bridgestone R197	Type		Bridgestone R283	Bridgestone R283
295/75R22.5	295/75R22.5	Size		295/75R22.5	295/75R22.5
7/32	6/32	Tread Depth (inches)		9/32	8/32
110	110	Pressure (psi)		110	110

8.3: TEST ROUTE

Pecos, Texas 9-mile circle track. Clockwise direction, middle lane (of 3).

Figure 18: Pecos Test Track

8.4: WEATHER CONDITIONS

Weather during testing was fair with winds from 0-9 mph. Weather data was acquired from a local Weather Underground weather station. Source shown below.

The reader should be aware that MVTS methods include instantaneous and constant weather data acquisition on each vehicle, and this testing has minimal dependency on external weather data collection. MVTS test data accounts for changes in wind, temperature, and other pertinent variables instantaneously. **Note:** darkened rows pertain to test times.

Table 4: Weather Data, June 15, 2021

Time	Temperature	Dew Point	Humidity	Wind	Wind Speed	Wind Gust	Pressure	Precip.	Condition
12:15 AM	76 °F	57 °F	52%	NE	7 mph	0 mph	27.38 in	0.0 in	Fair
1:15 AM	74 °F	56 °F	55%	NE	5 mph	0 mph	27.38 in	0.0 in	Fair
2:15 AM	73 °F	56 °F	55%	CALM	0 mph	0 mph	27.37 in	0.0 in	Fair
3:15 AM	71 °F	56 °F	60%	ENE	6 mph	0 mph	27.37 in	0.0 in	Fair
4:15 AM	70 °F	56 °F	62%	CALM	0 mph	0 mph	27.38 in	0.0 in	Fair
5:15 AM	69 °F	56 °F	64%	NNW	3 mph	0 mph	27.39 in	0.0 in	Fair
6:15 AM	69 °F	56 °F	64%	CALM	0 mph	0 mph	27.40 in	0.0 in	Fair
7:15 AM	67 °F	54 °F	62%	CALM	0 mph	0 mph	27.41 in	0.0 in	Fair
8:15 AM	73 °F	57 °F	59%	W	3 mph	0 mph	27.42 in	0.0 in	Fair
9:15 AM	75 °F	57 °F	54%	CALM	0 mph	0 mph	27.43 in	0.0 in	Fair
10:15 AM	79 °F	57 °F	47%	CALM	0 mph	0 mph	27.44 in	0.0 in	Fair
11:15 AM	84 °F	58 °F	42%	ESE	7 mph	0 mph	27.43 in	0.0 in	Fair
12:15 PM	87 °F	58 °F	36%	E	7 mph	0 mph	27.42 in	0.0 in	Fair
1:15 PM	91 °F	56 °F	31%	NE	9 mph	0 mph	27.40 in	0.0 in	Fair
2:15 PM	94 °F	54 °F	25%	ENE	5 mph	0 mph	27.38 in	0.0 in	Fair
3:15 PM	96 °F	54 °F	25%	ENE	10 mph	18 mph	27.36 in	0.0 in	Fair
4:15 PM	97 °F	51 °F	22%	ESE	8 mph	17 mph	27.36 in	0.0 in	Fair
5:15 PM	97 °F	52 °F	22%	E	10 mph	0 mph	27.34 in	0.0 in	Fair
6:15 PM	98 °F	49 °F	19%	NE	12 mph	0 mph	27.32 in	0.0 in	Fair
7:15 PM	96 °F	53 °F	23%	E	15 mph	0 mph	27.31 in	0.0 in	Fair
8:15 PM	94 °F	50 °F	22%	ESE	8 mph	0 mph	27.32 in	0.0 in	Fair
9:15 PM	91 °F	50 °F	25%	E	6 mph	0 mph	27.32 in	0.0 in	Fair
10:15 PM	87 °F	50 °F	28%	E	7 mph	0 mph	27.33 in	0.0 in	Fair
11:15 PM	85 °F	51 °F	31%	E	8 mph	0 mph	27.36 in	0.0 in	Fair

Source: https://www.wunderground.com/history/daily/us/tx/pecos/KPEQ/date/2021-

8.5: PRODUCT DETAILS

- Michelin Aerodynamic Solutions
  One Parkway South, Greenville, SC 29615 USA
  https://www.michelintruck.com/services-and-programs/aerodynamic-solutions/

8.6: TEST PERSONNEL (ON-SITE)

8.6a: MVT SOLUTIONS ENGINEERING

- Daryl Bear, Lead Engineer & COO
- Jacob Schwartz, Test Engineer
- Jonathan Ruppert, Test Engineer

8.6b: MVT SOLUTIONS DRIVERS & TECHNICIANS

- Allan Dahringer, Director of Maintenance, MVT fleet
- Seth Knight
- Carlos Aragon
- Jack Burchell

8.6c: MICHELIN

- Trevor Christopher, CES Specialist
- Lyderic Champetier, Supply Chain Manager
- Jason Koches, Business Development Manager, Aerodynamic Solutions

8.7: MVT SOLUTIONS CONTACT INFO

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