




## **ATDS Emission Lab Test Report**

for Exhaust Emission Test Procedures according

Date:	4/19/2023	Start Time:	13:36:16
Test Number:	ONT3_005152	End Time:	14:29:51
Test Vehicle:	3225_GCRXT03.05PV-479		
Test Legislation:	EPA1066		
Test Cycle:	US06+US06		
Test Purpose:	Certification		
Test Cell:	IGEM-V-TC1		
Order Number:	3225		
Remark:	TEST #1		

 QUALITY ASSURANCE

REDACTED

INSPECTED BY \_\_\_\_\_

DATE: 4/24/2023

COMMENTS: OK

\_\_\_\_\_

**General Data**

Test Number	ONT3_005152		
Test Name	US06_US06		
Test Cell	iGEM-V-TC1		
Test Type	US06_US06		
Legislation	EPA1066		
Requirements (Bag)	CERTIFICATION		
Requirements (Modal)	CERTIFICATION		
Date	4/19/2023	CH <sub>4</sub> Response Factor	
Test Start	13:36:16	Odometer Position <sup>[mi]</sup>	107657
Start Time Cycle	2023-04-19 14:01-07-(000)	Delay Time Method	
Test End	14:29:51		
Operator	REDACTED	Air Condition	OFF
Driver	REDACTED	Particle Measurement	USUAL
Shifttable	Auto		
Flow Stream	ModalDirty		
Calibrated Ranges	autorange		
Remark	TEST #1		

**Vehicle Data** **3225\_GCRXT03.05PV-479**

Manufacturer	RAM 1500	Displacement	
Vehicle Model	REDACTED	Engine Family	GCRXT03.05PV
Order Number	3225	Manufacturer	DODGE
Test Group	3225_GCRXT03.05PV-479	Transmission	Automatic
Evaporative Family		Engine Code	

**Dyno Data** **3225**

Dyno Type	SVOR	Inertia <sup>[lb]</sup>	6000.00
	A <sup>[lb]</sup>	B <sup>[lb/mph]</sup>	C <sup>[lb/mph<sup>2</sup>]</sup>
Street Load	41.990	0.08760	0.036520
Road Load	4.400	0.32000	0.032700

**Fuel Data** **Diesel-S-000266**

Fuel Type	DIESEL	Fuel Temperature <sup>[°C]</sup>	15.00
Fuel Analyze Date		Fuel Density <sup>[kg/l]</sup>	0.8540
Fuel Manufacturer		Net Heat. Val. <sup>[BTU/lb]</sup>	18382
Fuel Tank Number		Carb. Weight Frac.	0.8700
Fuel Charge		HC Ratio	1.7945
Remarks:		OC Ratio	-1.0000

**Weather Limit Data**

Temp Min <sup>[deg F]</sup>	68.00	Dew Point Max <sup>[deg F]</sup>	100.00
Temp Max <sup>[deg F]</sup>	86.00	Pressure Min <sup>[mbar]</sup>	800.0
Dew Point Min <sup>[deg F]</sup>	15.01	Pressure Max <sup>[mbar]</sup>	1100.0

**Fan Speed Data** **RoadSpeed**

F1 <sup>[%]</sup>	F2 <sup>[%/mph]</sup>	F3 <sup>[%/mph<sup>2</sup>]</sup>
5	0.745999992	0.0031

**Test Data** US06\_US06 Operator **REDACTED** Speed Table Date: 4/19/2023  
**Test Number** ONT3\_005152 Driver **REDACTED** Shift Table Auto Cold Start

Vehicle	REDACTED	Dyno	Fuel	Test Timing
Vehicle #	REDACTED	Inertia <sup>RS</sup> 6000.00	Diesel-S-000266	Start Time 13:36:16
Model	RAM 1500	A <sup>(bf)</sup> 4.400	Fuel type DIESEL	End Time 14:29:51
Year	2016	B <sup>(bt/mph)</sup> 0.32000	Density 0.8540	
Displacement:		C <sup>(lb/imp/h<sup>2</sup>)</sup> 0.032700	NHV 18362	Soak Time
Engine Family	GCRXT03.05PV		CWF 0.8700	
Trans	Automatic	Flow Stream Modal/Dirty		
Odometer <sup>(mile)</sup>	107657	Remark TEST #1		

**Bag Analysis**

PHASE 1	THC <sup>(ppmC)</sup>	CO <sup>(ppm)</sup>	CO <sub>2</sub> <sup>(%)</sup>	NO <sub>x</sub> <sup>(ppm)</sup>	N <sub>2</sub> O <sup>(ppm)</sup>	CH <sub>4</sub> <sup>(ppm)</sup>	NMHC <sup>(ppm)</sup>	Temp. <sup>(F)</sup>	76.34	Volume <sup>(cc)</sup>	7984
Range	100	50	4	30		30		Press. <sup>(inHg)</sup>	29.00	D.F.	15.03
Zero Read	0.00	0.0	0.0	0.0		0.0		RH <sup>(%)</sup>	35.17	Ph. Start <sup>(s)</sup>	690.3
Span Read	93.31	46.56	3.722	27.960		27.600		AH <sup>(ppm)</sup>	6.960	Ph. End <sup>(s)</sup>	1287.0
Sample	-0.24	0.43	0.860	2.580		0.086	-0.242	Dist. <sup>(m)</sup>	8.04	Ph. Length <sup>(s)</sup>	595.8
Mass.	0.000	0.113	3588.918	0.997		0.013	0.000	NO <sub>x</sub> Corr.	0.8907	Bag An. Del	645
Mass per Dist.	0.0000	0.0140	444.071	0.1240		0.0016	0.0000	Dr. Viola.	0	Vio. Durat. <sup>(s)</sup>	0.0
PSS Massflow Particles [g/h]	0.4201							Crank <sup>(s)</sup>	0.00	FE <sup>(miles/gal)</sup>	22.9
			PSS Mass per Dist. [g/mile]								

**Total Result**

actual	THC <sup>(g/mile)</sup>	CO <sup>(g/mile)</sup>	CO <sub>2</sub> <sup>(g/mile)</sup>	NO <sub>x</sub> <sup>(g/mile)</sup>	N <sub>2</sub> O <sup>(g/mile)</sup>	CH <sub>4</sub> <sup>(g/mile)</sup>	NMHC <sup>(g/mile)</sup>	HC+NO <sub>x</sub> <sup>(g/mile)</sup>	Fuel Economy
Mass per Dist.	0.0000	0.0140	444.07	0.1240		0.0016	0.0000	0.1240	mile/gal 22.91
Mass per Dist. (rounded)	0.0000	0.0140	444.1	0.1240		0.0016	0.0000	0.1240	Dist. <sup>(m)</sup> 8.04

Mass per Dist. - Particulate PSS 0.0087

**Test Data:** US06\_US06  
**Test Number:** ONT3\_005152

**Operator:** REDACTED  
**Driver:** REDACTED

**Date:** 4/19/2023

**Driver Violations**

	<u>P1</u>	<u>I1</u>	<u>Phase1</u>
Number of Violations	-	0	0
Duration of Violations	(s)	0.0	0.0

Number	Phase	Violation Begin (s)	Violation End (s)	Violation Duration (s)	Scheduled Speed (mph)	Max Speed Deviation (mph)
No Violations In This Test				0.0		

**Phase 1  
Analyzer Adjust**

	Range Number	Range ppm	Zero Value ppm	Zero Set Value ppm	Zero Offset %	Span Value ppm	Span Set Value ppm	Span Offset %	ReZero Value ppm
CO <sub>2</sub> (%)	2	4	0.00	0.00	-0.01	3.72	3.72	0.00	0.00
CO	1	50	0.00	0.00	0.00	46.56	46.56	0.00	0.00
NO <sub>x</sub>	1	30	-0.01	0.00	-0.04	27.96	27.97	-0.03	0.01
THC (ppmC1)	2	30	0.00	0.00	0.00	28.35	28.35	0.00	0.28
CH <sub>4</sub>	1	30	0.00	0.00	0.00	27.60	27.60	0.00	0.02

**Analyzer Check**

	Range Number	Range ppm	Zero Value ppm	Zero Set Value ppm	Zero Drift %	Span Value ppm	Span Set Value ppm	Span Drift %
CO <sub>2</sub> (%)	2	4	0.00	0.00	-0.01	3.72	3.72	-0.02
CO	1	50	0.01	0.00	0.02	46.47	46.56	-0.17
NO <sub>x</sub>	1	30	0.01	0.00	-0.01	27.91	27.97	-0.17
THC (ppmC1)	2	100	0.27	0.00	-0.04	93.23	93.43	0.12
CH <sub>4</sub>	1	30	0.00	0.00	-0.05	27.48	27.60	-0.39

Operator **REDACTED** Driver **REDACTED** Customer : 3225  
 Test Purpose: Certification Legislation: EPA1066 Requirements (Bag) CERTIFICATION  
 Conditioning: Emission Standards Default  
 Test Intent: TEST #1

VIN **REDACTED**

**DYNO Data**

	Road Load	Street Load
Inertia [kg]	6000.00	
A [N]	19.572	186.781
B [N/km/h]	0.88448	0.24213
C [N/km2/h2]	0.056161	0.062722

	Phase1	Phase2	Phase3	Phase4	Weighted
<b>Distance (m)</b>					
Target	12887.54				12887.54
Driven	12931.28				12931.28
<b>Distance Rating (%)</b>	0.3394				0.3394
<b>Cycle Energy (MJ)</b>					
Target	15.12				15.12
Driven	14.85				14.85
<b>Distance per Energy Cycle (m/MJ)</b>					
Target	15.12				852.20
Driven	14.85				870.55
<b>Road Load Work Fraction</b>					
Target	0.5246				0.5246
Driven	0.5572				0.5572
<b>Inertial Work (MJ)</b>					
Target	7.19				7.19
Driven	6.58				6.58
<b>Inertial Work Fraction</b>					
Target	0.4754				0.4754
Driven	0.4428				0.4428
<b>Inertial Work Rating (%)</b>	-8.5226				-8.5226
<b>Absolute Speed Change (m/s)</b>					
Target	360.05				360.05
Driven	342.78				342.78
<b>Absolute Speed Change Rating (%)</b>	-4.7943				-4.7943
<b>Energy Rating (%)</b>	-1.7761				-1.7761
<b>Energy Economy Rating (%)</b>	-2.1538				-2.1538

Operator **REDACTED** Driver **REDACTED** Customer : 3225  
 Test Purpose: Certification Legislation: EPA1066 Requirements (Bag) CERTIFICATION  
 Conditioning: Emission Default

Overall Status **Passed**

**Phase 1**

Test Record #: ONT3\_005152

Vehicle ID: **REDACTED**

	<u>Average</u>	<u>Min</u>	<u>Max</u>	<u>Low Limit</u>	<u>Upper Limit</u>	<u>Status</u>
<b>General</b>						
Cell Temperature (°C)	24.64	22.70	25.50	20.00	30.00	Passed
Barometer (mbar)	982.01	981.90	982.10	800.00	1100.00	Passed
Dew Point Temperature (°C)	8.23	7.70	8.80	-9.44	37.78	Passed
Specific Humidity Test Cell (gr/lb)	48.86	46.84	50.63	38.50	87.50	Passed
Dilution Air Temperature (°C)	34.67	25.55	42.65	15.00	52.00	Passed
Weighted Test Dilution Factor (-)	15.03			7.00	20.00	Passed
Dilution Factor (-)	15.03			7.00	20.00	Passed
Fuel Economy (mpg)	22.91			10.00	50.00	Passed
Zero Offset (%)	-	-0.04	0.00	-2.00	2.00	Passed
Span Offset (%)	-	-0.03	0.00	-2.00	2.00	Passed
Zero Check Drift (%)	-	-0.05	0.02	-2.00	2.00	Passed
Span Check Drift (%)	-	-0.39	0.12	-2.00	2.00	Passed
Bag vs. Modal Validation (CO2) (%)	n.a.	-	-	-10.00	10.00	Passed
<b>Ambient Concentrations</b>						
HC (ppm)	6.42			2.00	10.00	Passed
NO <sub>x</sub> (ppm)	0.01			-0.10	10.00	Passed
CO (ppm)	0.04			0.00	15.00	Passed
CO <sub>2</sub> (ppm)	485.40			300.00	650.00	Passed
CH <sub>4</sub> (ppm)	2.06			1.30	10.00	Passed
N <sub>2</sub> O (ppm)				0.20	0.50	
<b>PM Filter Parameters</b>						
Particulate Filter Temperature (°C)	50.99	50.13	51.85	42.00	60.00	Passed
Filter Face Velocity (cm/s)	90.50			0.00	100.00	Passed
Particulate Result Validation (ug)	165.00			1.00	600.00	Passed
<b>Test-Cycle Specific Validations</b>						
Phase Distance (miles)	8.04			7.85	8.17	Passed
Sample Phase Time (s)	595.8			594.7	598.7	Passed
Duration Phase 1 (s)	596.70					NA
Crank Time Phase1 (s)	0.00			0	5	Passed
Crank Time Phase3 (s)				0	5	
Crank Counts	0			0	1	Passed
Shutdown Time Phase 1				0	5	
Shutdown Time Phase 3				0	5	
Hot Soak Time (s)				540.00	660.00	
Test Hold Counts	0					Passed
Duration Test Hold (s)	0.00			0	60	Passed