



## ATDS Emission Lab Test Report

for Exhaust Emission Test Procedures according

<b>Date:</b>	2/24/2023	<b>Start Time:</b>	12:07:24
<b>Test Number:</b>	ONT3_004934	<b>End Time:</b>	13:06:32
<b>Test Vehicle:</b>	3225_GCRXT03.05PV_75		
<b>Test Legislation:</b>	EPA1066		
<b>Test Cycle:</b>	US06+US06		
<b>Test Purpose:</b>	Certification		
<b>Test Cell:</b>	iGEM-V-TC1		
<b>Order Number:</b>	3225		
<b>Remark:</b>	Consent Decree		



QUALITY ASSURANCE

REDACTED

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

DATE: 2/28/2023

COMMENTS: 915

\_\_\_\_\_

## General Data

Test Number	ONT3_004934		
Test Name	US06_US06		
Test Cell	iGEM-V-TC1		
Test Type	US06_US06		
Legislation	EPA1066		
Requirements (Bag)	CERTIFICATION		
Requirements (Modal)	CERTIFICATION		
Date	2/24/2023	CH <sub>4</sub> Response Factor	
Test Start	12:07:24	Odometer Position <sup>[mi]</sup>	93126
Start Time Cycle	2023-02-24 12 36-32-(000)	Delay Time Method	
Test End	13:06:32		
Operator	REDACTED	Air Condition	OFF
Driver	REDACTED	Particle Measurement	USUAL
Shiftable	Auto		
Flow Stream	ModalDirty		
Calibrated Ranges	autorange		
Remark	Consent Decree		

## Vehicle Data 3225\_GCRXT03.05PV\_75

Manufacturer	CHEROKEE	Displacement	
Vehicle Model	REDACTED	Engine Family	GCRXT03.05PV
Order Number	3225	Manufacturer	JEEP
Test Group	3225_GCRXT03.05PV_75	Transmission	Automatic
Evaporative Family		Engine Code	

## Dyno Data 3225

Dyno Type	SVOR	Inertia <sup>[lb]</sup>	5500.00
	A <sup>[lb]</sup>	B <sup>[lb/mph]</sup>	C <sup>[lb/mph<sup>2</sup>]</sup>
Street Load	73.250	-0.29150	0.036730
Road Load	30.300	-0.10700	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: 2/24/2023  
**Test Number** ONT3\_004934 Driver Shift Table Auto Cold Start

Vehicle	REDACTED	Dyno	Fuel	Test Timing
Vehicle #	REDACTED	Inertia <sup>[lb]</sup> 5500.00	Diesel-S-000266	Start Time 12:07:24
Model	CHEROKEE	A <sup>[lb]</sup> 30.300	Fuel type DIESEL	End Time 13:06:32
Year	2016	B <sup>[lb/mph]</sup> -0.10700	Density 0.8540	
Displacement:		C <sup>[lb/mph<sup>2</sup>]</sup> 0.032700	NI-V 18382	Soak Time
Engine Family	GCRXT03.05PV		CWF 0.8700	
Trans	Automatic	Flow Stream	Modal Dirty	
Odometer <sup>[mi]</sup>	93126	Remark	Consent Decree	

**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>	79.48	Volume <sup>[liters]</sup>	8037
Range	100	50	1	30		30		Press. <sup>[psi]</sup>	28.97	D.F.	15.17
Zero Read	0.01	0.0	0.0	0.0		0.0		RH <sup>[%]</sup>	30.36	Ph. Start <sup>[s]</sup>	880.4
Span Read	93.11	46.54	0.931	27.980		27.600		AH <sup>[ppm]</sup>	6.673	Ph. End <sup>[s]</sup>	1288.3
Sample	0.01	0.26	0.852	9.852		0.045	0.009	Dist. <sup>[m]</sup>	8.04	Ph. Length <sup>[s]</sup>	597.0
Mass.	0.001	0.068	3558.112	3.797		0.007	0.001	NO <sub>x</sub> Corr.	0.8828	Bag An. Del	688
Mass per Dist.	0.0002	0.0084	442.385	0.4721		0.0009	0.0002	Dr. Viola	0	Vio. Durat. <sup>[s]</sup>	0.0
PSS Massflow Particles [g/h]	0.0354							Crank <sup>[s]</sup>	0.00	FE <sup>[miles/gal]</sup>	23.0
			PSS Mass per Dist. [g/mile]				0.0007				

**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.	0.0002	0.0084	442.38	0.4721		0.0009	0.0002	0.4723	miles/gal 23.00
Mass per Dist. (rounded)	0.0002	0.0084	442.4	0.4721		0.0009	0.0002	0.4723	Dist. <sup>[mi]</sup> 8.04
Mass per Dist. - Particulate PSS	0.0007								

Test Data: US06\_US06  
Test Number: ONT3\_004934

Operator: **REDACTED**  
Driver:

Date: 2/24/2023

**Driver Violations**

	<u>P1</u>	<u>I1</u>	<u>Phase1</u>
Number of Violations	0	0	0
Duration of Violations	0.0	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						



**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> (%)	1	1	0.00	0.00	0.01	0.93	0.93	-0.01	0.00
CO	1	50	-0.04	0.00	-0.08	46.54	46.56	-0.04	0.00
NO <sub>x</sub>	1	30	0.02	0.00	0.07	27.98	27.97	0.03	0.02
THC (ppmC1)	2	100	0.00	0.00	0.01	93.11	93.11	0.00	0.11
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> (%)	1	1	0.00	0.00	0.00	0.93	0.93	-0.36
CO	1	50	0.00	0.00	0.08	46.43	46.56	-0.21
NO <sub>x</sub>	1	30	0.01	0.00	-0.03	27.93	27.97	-0.16
THC (ppmC1)	2	100	0.11	0.00	-0.03	93.04	93.11	-0.07
CH <sub>4</sub>	1	30	0.00	0.00	-0.04	27.65	27.60	0.17

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

VIN REDACTED

**DYNO Data**

	Road Load	Street Load
Inertia <sup>[lb]</sup>	5500.00	
A <sup>[N]</sup>	134.781	325.832
B <sup>[N/km/h]</sup>	-0.29575	-0.80571
C <sup>[N/km2/h2]</sup>	0.056161	0.063083

	Phase1	Phase2	Phase3	Phase4	Weighted
<b>Distance (m)</b>					
Target	12887.54				12887.54
Driven	12942.61				12942.61
<b>Distance Rating (%)</b>	0.4273				0.4273
<b>Cycle Energy (MJ)</b>					
Target	15.03				15.03
Driven	14.85				14.85
<b>Distance per Energy Cycle (m/MJ)</b>					
Target	15.03				857.51
Driven	14.85				871.75
<b>Road Load Work Fraction</b>					
Target	0.5615				0.5615
Driven	0.5962				0.5962
<b>Inertial Work (MJ)</b>					
Target	6.59				6.59
Driven	6.00				6.00
<b>Inertial Work Fraction</b>					
Target	0.4385				0.4385
Driven	0.4038				0.4038
<b>Inertial Work Rating (%)</b>	-9.0268				-9.0268
<b>Absolute Speed Change (m/s)</b>					
Target	360.04				360.04
Driven	338.44				338.44
<b>Absolute Speed Change Rating (%)</b>	-5.9992				-5.9992
<b>Energy Rating (%)</b>	-1.2123				-1.2123
<b>Energy Economy Rating (%)</b>	-1.6598				-1.6598

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

Overall Status **Passed** ✓

**Phase 1**

Test Record #: ONT3\_004934

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)	26.35	24.60	27.20	20.00	30.00	Passed
Barometer (mbar)	981.02	980.90	981.20	800.00	1100.00	Passed
Dew Point Temperature (°C)	7.54	4.80	9.70	-9.44	37.78	Passed
Specific Humidity Test Cell (gr/lb)	46.71	38.66	53.81	38.50	87.50	Passed
Dilution Air Temperature (°C)	32.58	32.15	32.95	15.00	52.00	Passed
Weighted Test Dilution Factor (-)	15.17			7.00	20.00	Passed
Dilution Factor (-)	15.17			7.00	20.00	Passed
Fuel Economy (mpg)	23.00			10.00	50.00	Passed
Zero Offset (%)	-	-0.08	0.07	-2.00	2.00	Passed
Span Offset (%)	-	-0.04	0.03	-2.00	2.00	Passed
Zero Check Drift (%)	-	-0.04	0.08	-2.00	2.00	Passed
Span Check Drift (%)	-	-0.36	0.17	-2.00	2.00	Passed
Bag vs. Modal Validation (CO2) (%)	n.a.	-	-	-10.00	10.00	Passed
<b>Ambient Concentrations</b>						
HC (ppm)	4.19			2.00	10.00	Passed
NO <sub>x</sub> (ppm)	0.05			-0.10	10.00	Passed
CO (ppm)	0.09			0.00	15.00	Passed
CO <sub>2</sub> (ppm)	487.90			300.00	650.00	Passed
CH <sub>4</sub> (ppm)	2.10			1.30	10.00	Passed
N2O (ppm)				0.20	0.50	
<b>PM Filter Parameters</b>						
Particulate Filter Temperature (°C)	49.98	46.55	51.55	42.00	60.00	Passed
Filter Face Velocity (cm/s)	91.04			0.00	100.00	Passed
Particulate Result Validation (ug)	14.00			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)	597.0			595.9	599.9	Passed
Duration Phase 1 (s)	597.90					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