



ATDS Emission Lab Test Report

for Exhaust Emission Test Procedures according

Date:	2/24/2023	Start Time:	10:58:04
Test Number:	ONT3_004933	End Time:	12:00:09
Test Vehicle:	3225_GCRXT03.05PV_75		
Test Legislation:	EPA1066		
Test Cycle:	HWFET+HWFET		
Test Purpose:	Certification		
Test Cell:	iGEM-V-TC1		
Order Number:	3225		
Remark:	Consent Decree		



QUALITY ASSURANCE

REDACTED

INSPECTED BY: _____

DATE: 2/28/2023

COMMENTS: OK

General Data

Test Number	ONT3_004933		
Test Name	HWFET_HWFET		
Test Cell	iGEM-V-TC1		
Test Type	HWFET_HWFET		
Legislation	EPA1066		
Requirements (Bag)	CERTIFICATION		
Requirements (Modal)	CERTIFICATION		
Date	2/24/2023	CH ₄ Response Factor	
Test Start	10:58:04	Odometer Position ^[mi]	93105
Start Time Cycle	2023-02-24 11 28-37-(000)	Delay Time Method	
Test End	12:00:09		
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 ^[lb]	5500.00
	A ^[lb]	B ^[lb/mph]	C ^[lb/mph²]
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 ^[°C]	15.00
Fuel Analyze Date		Fuel Density ^[kg/l]	0.8540
Fuel Manufacturer		Net Heat. Val. ^[BTU/lb]	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 ^[deg F]	68.00	Dew Point Max ^[deg F]	100.00
Temp Max ^[deg F]	86.00	Pressure Min ^[mbar]	800.0
Dew Point Min ^[deg F]	15.01	Pressure Max ^[mbar]	1100.0

Fan Speed Data **RoadSpeed**

F1 ^[%]	F2 ^[%/mph]	F3 ^[%/mph²]
5	0.745999992	0.0031

Test Data HWFET_HWFET Operator **REDACTED** Speed Table Date: 2/24/2023
Test Number ONT3_004933 Driver Shift Table Auto Cold Start

Vehicle	REDACTED	Dyno		Fuel		Test Timing	
Vehicle #	REDACTED	Inertia ^(lb)	5500.00	Diesel-S-000265	Start Time	10:58:04	
Model	CHEROKEE	A ^(ft)	30.300	Fuel type	DIESEL	End Time	12:00:09
Year	2016	B ^(ft/mph)	-0.10700	Density	0.8540		
Displacement:		C ^(lb/mph²)	0.032700	NHV	18382	Soak Time	
Engine Family	GCRXT03.05PV			CWF	0.8700		
Trans	Automatic	Flow Screen	Modal/Dirty				
Odometer ^(mile)	93105	Remark	Consent Decree				

Bag Analysis

PHASE 1	THC ^(ppmC)	CO ^(ppm)	CO ₂ ^(%)	NO _x ^(ppm)	N ₂ O ^(ppm)	CH ₄ ^(ppm)	NMHC ^(ppm)	Temp. ^(°F)	77.60	Volume ^(cc)	4745
Range	100	50	4	30		30		Press. ^(inHg)	28.98	D.F.	11.33
Zero Read	0.01	0.0	0.0	0.0		0.0		RH ^(%)	27.64	Ph. Start ^(s)	778.2
Span Read	93.11	46.57	3.721	27.970		27.600		AH ^(inHg)	5.705	Ph. End ^(s)	1544.1
Sample	0.12	0.37	1.157	4.216		0.212	0.124	Dist. ^(m)	10.27	Ph. Length ^(s)	764.1
Mass.	0.010	0.058	2863.947	0.937		0.019	0.010	NO _x Corr.	0.8587	Bag An. Del	641
Mass per Dist.	0.0009	0.0057	278.882	0.0912		0.0019	0.0009	Dr. Viola.	0	Vio. Durat. ^(s)	0.0
PSS Massflow Particles [g/h]	0.0055							Crank ^(s)	0.00	FE ^(mile/gal)	36.5
										PSS Mass per Dist. [g/mile]	0.0001

Total Result

actual	THC ^(g/mile)	CO ^(g/mile)	CO ₂ ^(g/mile)	NO _x ^(g/mile)	N ₂ O ^(g/mile)	CH ₄ ^(g/mile)	NMHC ^(g/mile)	HC+NO _x ^(g/mile)	Fuel Economy
Mass per Dist.	0.0009	0.0057	278.88	0.0912		0.0019	0.0009	0.0922	mile/gal 36.49
Mass per Dist. (rounded)	0.0009	0.0057	278.9	0.0912		0.0019	0.0009	0.0922	Dist. ^(m) 10.27

Mass per Dist. - Particulate PSS 0.0001

Test Data: HWFET_HWFET
Test Number: ONT3_004933

Operator:
Driver:

REDACTED

Date: 2/24/2023

Driver Violations

	<u>P1</u>	<u>I1</u>	<u>Phase1</u>
Number of Violations	-	0	0
Duration of Violations	(s) 0.0	0.0	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 ₂ (%)	2	4	0.00	0.00	0.00	3.72	3.72	0.00	0.00
CO	1	50	0.01	0.00	0.01	46.57	46.56	0.02	0.00
NO _x	1	30	0.00	0.00	0.01	27.97	27.97	0.00	0.01
THC (ppmC1)	2	100	0.00	0.00	0.01	93.11	93.11	0.00	0.11
CH ₄	1	30	0.00	0.00	0.00	27.60	27.60	0.00	0.00

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 ₂ (%)	2	4	0.00	0.00	-0.01	3.72	3.72	-0.02
CO	1	50	0.04	0.00	0.07	46.51	46.56	-0.12
NO _x	1	30	0.00	0.00	-0.02	27.94	27.97	-0.10
THC (ppmC1)	2	100	0.11	0.00	-0.02	93.13	93.11	0.02
CH ₄	1	30	0.00	0.00	0.00	27.59	27.60	-0.03

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 [kg]	5500.00					
A [N]	134.781	325.832				
B [N/km/h]	-0.29575	-0.80571				
C [N/km2/h2]	0.056161	0.063083				
			Phase1	Phase2	Phase3	Phase4
Distance (m)						Weighted
Target			16506.54			
Driven			16523.19			16506.54
						16523.19
Distance Rating (%)			0.1008			0.1008
Cycle Energy (MJ)						
Target			12.28			12.28
Driven			12.22			12.22
Distance per Energy Cycle (m/MJ)						
Target			12.28			1343.84
Driven			12.22			1352.25
Road Load Work Fraction						
Target			0.7610			0.7610
Driven			0.7689			0.7689
Inertial Work (MJ)						
Target			2.94			2.94
Driven			2.82			2.82
Inertial Work Fraction						
Target			0.2390			0.2390
Driven			0.2311			0.2311
Inertial Work Rating (%)			-3.7784			-3.7784
Absolute Speed Change (m/s)						
Target			130.69			130.69
Driven			126.66			126.66
Absolute Speed Change Rating (%)			-3.0848			-3.0848
Energy Rating (%)			-0.5217			-0.5217
Energy Economy Rating (%)			-0.6257			-0.6257

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

Overall Status Review

Phase 1

Test Record #: ONT3_004933

Vehicle ID: **REDACTED**

	<u>Average</u>	<u>Min</u>	<u>Max</u>	<u>Low Limit</u>	<u>Upper Limit</u>	<u>Status</u>
General						
Cell Temperature (°C)	25.33	23.80	26.50	20.00	30.00	Passed
Barometer (mbar)	981.82	981.80	981.90	800.00	1100.00	Passed
Dew Point Temperature (°C)	5.32	4.80	6.20	-9.44	37.78	Passed
Specific Humidity Test Cell (gr/lb)	39.95	38.33	42.47	38.50	87.50	Review <i>OK</i>
Dilution Air Temperature (°C)	34.69	34.35	35.05	15.00	52.00	Passed
Weighted Test Dilution Factor (-)	11.33			7.00	20.00	Passed
Dilution Factor (-)	11.33			7.00	20.00	Passed
Fuel Economy (mpg)	36.49			10.00	50.00	Passed
Zero Offset (%)	-	0.00	0.01	-2.00	2.00	Passed
Span Offset (%)	-	0.00	0.02	-2.00	2.00	Passed
Zero Check Drift (%)	-	-0.02	0.07	-2.00	2.00	Passed
Span Check Drift (%)	-	-0.12	0.02	-2.00	2.00	Passed
Bag vs. Modal Validation (CO2) (%)	n.a.	-	-	-10.00	10.00	Passed
Ambient Concentrations						
HC (ppm)	4.27			2.00	10.00	Passed
NO _x (ppm)	0.02			-0.10	10.00	Passed
CO (ppm)	0.14			0.00	15.00	Passed
CO ₂ (ppm)	483.40			300.00	650.00	Passed
CH ₄ (ppm)	2.08			1.30	10.00	Passed
N ₂ O (ppm)				0.20	0.50	Passed
PM Filter Parameters						
Particulate Filter Temperature (°C)	49.77	46.85	51.35	42.00	60.00	Passed
Filter Face Velocity (cm/s)	90.07			0.00	100.00	Passed
Particulate Result Validation (ug)	6.00			1.00	600.00	Passed
Test-Cycle Specific Validations						
Phase Distance (miles)	10.27			10.05	10.46	Passed
Sample Phase Time (s)	764.1			762.9	766.9	Passed
Duration Phase 1 (s)	764.90					NA
Crank Time Phase1 (s)	0.00			0	5	Passed
Crank Time Phase3 (s)				0	5	Passed
Crank Counts	0			0	1	Passed
Shutdown Time Phase 1 (s)				0	5	Passed
Shutdown Time Phase 3 (s)				0	5	Passed
Hot Soak Time (s)				540.00	660.00	Passed
Test Hold Counts	0					Passed
Duration Test Hold (s)	0.00			0	60	Passed