



ATDS Emission Lab Test Report

for Exhaust Emission Test Procedures according

Date:	10/27/2023	Start Time:	10:48:01
Test Number:	ONT3_006034	End Time:	11:47:08
Test Vehicle:	3225_ECRXT03.05PV-118		
Test Legislation:	EPA1066		
Test Cycle:	HWFET+HWFET		
Test Purpose:	Certification		
Test Cell:	iGEM-V-TC1		
Order Number:	3225		
Remark:	CONSENT DECREE		

AD QUALITY ASSURANCE

INSPECTED BY: REDACTED _____

DATE: 10/30/2023

COMMENTS: REDACTED _____

General Data

Test Number	ONT3_006034		
Test Name	HWFET_HWFET		
Test Cell	iGEM-V-TC1		
Test Type	HWFET_HWFET		
Legislation	EPA1066		
Requirements (Bag)	CERTIFICATION		
Requirements (Modal)	CERTIFICATION		
Date	10/27/2023	CH ₄ Response Factor	
Test Start	10:48:01	Odometer Position ^[mi]	115874
Start Time Cycle	2023-10-27 11 15-37-(000)	Delay Time Method	
Test End	11:47:08		
Operator	REDACTED	Air Condition	OFF
Driver	REDACTED	Particle Measurement	USUAL
Shiftable	Auto		
Flow Stream	ModalDirty		
Calibrated Ranges	autorange		
Remark	CONSENT DECREE		

Vehicle Data 3225_ECRXT03.05PV-118

Manufacturer	CHEROKEE	Displacement	
Vehicle Model	REDACTED	Engine Family	ECRXT03.05PV
Order Number	3225	Manufacturer	JEEP
Test Group	3225_ECRXT03.05PV-118	Transmission	Automatic
Evaporative Family		Engine Code	
Made Date	2014	License Plate	
Tire Manufacturer		Trim Level	
Tire Model		Axle Ratio	1
Tire Size		Drive Axle Weight ^[lbs]	
Tire Pressure ^[psi]	0	Tank Volume ^[gal]	0
Engine Code	ECRXT03.05PV	Tank Material	
Number of Cylinders	6		

Dyno Data 3225

Dyno Type	SVOR	Inertia ^[lb]	5500.00
	A ^[lb]	B ^[lb/imp]	C ^[lb/imp2]
Street Load	60.490	-0.01010	0.032530
Road Load	16.600	0.39900	0.026200

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: 10/27/2023
Test Number ONT3_006034 Driver **REDACTED** Shift Table Auto Cold Start

Vehicle	REDACTED	Dyno	Fuel	Test Timing
Vehicle #	REDACTED	Inertia ^(lb) 5500.00	Diesel-S-000266	Start Time 10:46:01
Model	CHEROKEE	A ^(lb) 16.600	Fuel type DIESEL	End Time 11:47:08
Year	2014	B ^(lb/imp) 0.39900	Density 0.8540	
Displacement:		C ^(lb/impH2) 0.025200	NHV 18392	Soak Time
Engine Family	ECRXT03.05PV		CWF 0.8700	
Trans	Automatic	Flow Stream ModalDirty		
Odometer ^(mi)	115874	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)	Volume ^(ft³)
Range	100	50	4	30		30		77.63	4744
Zero Read	0.01	0.0	0.0	0.0		0.0		Press. ^(inHg) 29.01	D.F. 12.74
Span Read	93.30	46.77	3.721	27.530		27.610		RH ^(%) 35.03	Ph. Start ^(°) 779.3
Sample	-2.03	0.10	1.022	0.022		0.120	-2.028	A ₂ ^(ppm) 7.286	Ph. End ^(°) 1544.2
Mass.	0.000	0.016	2528.043	0.005		0.011	0.000	Dist. ^(mi) 10.26	Ph. Length ^(°) 764.1
Mass per Dist.	0.0000	0.0015	246.365	0.0005		0.0011	0.0000	NO _x Corr. 0.8980	Bag An. Del ^(°) 642
PSS Massflow Particles [g/h]	0.0055							Dr. Viola 0	Vio. Durat. ^(s) 0.0
			PSS Mass per Dist. [g/mile]				0.0001	Crank ^(s) 0.00	FE ^(mi/gal) 41.3

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.	0.0000	0.0015	246.37	0.0005		0.0011	0.0000	0.0005	mile/gal 41.30
Mass per Dist. (rounded)	0.0000	0.0015	246.4	0.0005		0.0011	0.0000	0.0005	Dist. ^(mi) 10.26

Mass per Dist. - Particulate PSS 0.0001

Test Data: HWFET_HWFET
Test Number: ONT3_006034

Operator: REDACTED
Driver: REDACTED

Date: 10/27/2023

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 ₂ (%)	2	4	0.00	0.00	-0.01	3.72	3.72	-0.03	0.00
CO	1	50	-0.03	0.00	-0.06	46.77	46.71	0.12	0.03
NO _x	1	30	0.00	0.00	0.01	27.53	27.51	0.07	0.00
THC (ppmC1)	2	30	0.00	0.00	0.01	28.41	28.41	0.00	0.08
CH ₄	1	30	0.00	0.00	0.00	27.61	27.60	0.03	0.13

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	-0.04
CO	1	50	0.03	0.00	-0.01	46.72	46.71	-0.09
NO _x	1	30	0.00	0.00	-0.01	27.49	27.51	-0.14
THC (ppmC1)	2	30	0.05	0.00	-0.09	28.45	28.41	0.15
CH ₄	1	30	0.00	0.00	-0.44	27.49	27.60	-0.39

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 ^[lb]	5500.00	
A ^[N]	73.840	269.073
B ^[N/km/h]	1.10284	-0.02792
C ^[N/km2/h2]	0.044998	0.055869

	Phase1	Phase2	Phase3	Phase4	Weighted
Distance (m)					
Target	16506.54				16506.54
Driven	16510.56				16510.56
Distance Rating (%)	0.0243				0.0243
Cycle Energy (MJ)					
Target	11.64				11.64
Driven	11.73				11.73
Distance per Energy Cycle (m/MJ)					
Target	11.64				1418.64
Driven	11.73				1407.50
Road Load Work Fraction					
Target	0.7477				0.7477
Driven	0.7289				0.7289
Inertial Work (MJ)					
Target	2.94				2.94
Driven	3.18				3.18
Inertial Work Fraction					
Target	0.2523				0.2523
Driven	0.2711				0.2711
Inertial Work Rating (%)	8.3605				8.3605
Absolute Speed Change (m/s)					
Target	130.69				130.69
Driven	139.23				139.23
Absolute Speed Change Rating (%)	6.5368				6.5368
Energy Rating (%)	0.8163				0.8163
Energy Economy Rating (%)	0.7855				0.7855

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_006034

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)	25.35	24.40	26.30	20.00	30.00	Passed
Barometer (mbar)	982.22	982.20	982.40	800.00	1100.00	Passed
Dew Point Temperature (°C)	8.80	8.00	9.60	-9.44	37.78	Passed
Specific Humidity Test Cell (gr/lb)	50.80	47.92	53.63	38.50	87.50	Passed
Dilution Air Temperature (°C)	36.09	35.75	36.35	15.00	52.00	Passed
Weighted Test Dilution Factor (-)	12.74			7.00	20.00	Passed
Dilution Factor (-)	12.74			7.00	20.00	Passed
Fuel Economy (mpg)	41.30			10.00	50.00	Passed
Zero Offset (%)	-	-0.06	0.01	-2.00	2.00	Passed
Span Offset (%)	-	-0.03	0.12	-2.00	2.00	Passed
Zero Check Drift (%)	-	-0.44	-0.01	-2.00	2.00	Passed
Span Check Drift (%)	-	-0.39	0.15	-2.00	2.00	Passed
Bag vs. Modal Validation (CO2) (%)	n.a.	-	-	-10.00	10.00	Passed
Ambient Concentrations						
HC (ppm)	6.28			2.00	10.00	Passed
NO _x (ppm)	0.04			-0.10	10.00	Passed
CO (ppm)	2.81			0.00	15.00	Passed
CO ₂ (ppm)	509.81			300.00	650.00	Passed
CH ₄ (ppm)	2.42			1.30	10.00	Passed
N ₂ O (ppm)				0.20	0.50	
PM Filter Parameters						
Particulate Filter Temperature (°C)	51.85	42.85	53.75	42.00	60.00	Passed
Filter Face Velocity (cm/s)	90.69			0.00	100.00	Passed
Particulate Result Validation (ug)	6.00			1.00	600.00	Passed
Test-Cycle Specific Validations						
Phase Distance (miles)	10.26			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	
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