

ATDS Emission Lab Test Report

for Exhaust Emission Test Procedures according

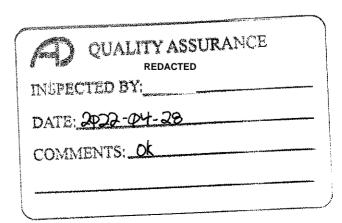
 Date:
 2022-04-27
 Start Time:
 08:58:34

 Test Number:
 ONT3_003224
 End Time:
 10:41:19

Test Vehicle: 3182_FCRXT03.05PV-1054
Test Legislation: EPA1066

Test Cycle: FTP75
Test Purpose: Certification
Test Cell: iGEM-V-TC1
Order Number: 3182

Remark: TEST 1 AS RECEIVED



General Data

Test Number	ONT3_003224		
Test Name	FTP75		
Test Cell	iGEM-V-TC1		
Test Type	FTP75		
Legislation	EPA1066		
Requirements (Bag)	CERTIFICATION		
Requirements (Modal)	CERTIFICATION		
Date	2022-04-27	CH₄ Response Factor	1.186
Test Start	08:58:34	Odometer Position ^[mi]	118787
Start Time Cycle	2022-04-27 09 21-17-(000)	Delay Time Method	
Test End	10:41:19		
Operator	REDACTED	Air Condition	OFF
Driver	REDACTED	Particle Measurement	USUAL
Shifttable	Auto		
Flow Stream	ModalDirty		
Calibrated Ranges	autorange		
Remark	TEST 1 AS RECEIVED		
Vehicle Data	3182_FCRXT03.05PV-10	054	
Manufacturer	1500	Displacement	3. <i>0L</i>
Vehicle Model	REDACTED	Engine Family	FCRXT03.05PV
Order Number	3182	Manufacturer	Ram
Test Group	3182_FCRXT03.05PV-1054	Transmission	Automatic
Evaporative Family		Engine Code	riatornase
Dyno Data	3182		
Dyno Data	3182		
Dyno Data Dyno Type	SVOR	Inertia ^[lb]	6000.00
		Inertia ^[ib] B ^[ibf/mph]	6000.00 C [libf/mph2]
	SVOR		C [lbf/mph2]
Dyno Type	SVOR A ^[lbf]	B [lbf/mph]	
Dyno Type Street Load Road Load	SVOR A ^[lbf] 50.570 12.400	B ^[libf/mph] 0.04400	C ^[lbf/mph2] 0.038470
Dyno Type Street Load Road Load Fuel Data	SVOR A ^[lbf] 50.570	B ^[libf/mph] 0.04400	C ^[lbf/mph2] 0.038470
Dyno Type Street Load Road Load	SVOR A ^[lbf] 50.570 12.400	B [lbf/mph] 0.04400 0.21500	C [libf/mph2] 0.038470 0.034900
Dyno Type Street Load Road Load Fuel Data Fuel Type	SVOR A ^[lbf] 50.570 12.400 Diesel-FL0821BE10	B ^[ibf/mph] 0.04400 0.21500 Fuel Temperature ^[*C]	C [libf/mph2] 0.038470 0.034900 15.00
Dyno Type Street Load Road Load Fuel Data Fuel Type Fuel Analyze Date	SVOR A ^[lbf] 50.570 12.400 Diesel-FL0821BE10	B [ibf/mph] 0.04400 0.21500 Fuel Temperature [°C] Fuel Density [kg/l]	C [libf/mph2] 0.038470 0.034900 15.00 0.8550
Dyno Type Street Load Road Load Fuel Data Fuel Type Fuel Analyze Date Fuel Manufacturer	SVOR A ^[lbf] 50.570 12.400 Diesel-FL0821BE10	B [lbf/mph] 0.04400 0.21500 Fuel Temperature [*C] Fuel Density [kg/l] Net Heat. Val. [BTU/lb]	C [libf/mph2] 0.038470 0.034900 15.00 0.8550 18295
Dyno Type Street Load Road Load Fuel Data Fuel Type Fuel Analyze Date Fuel Manufacturer Fuel Tank Number	SVOR A ^[lbf] 50.570 12.400 Diesel-FL0821BE10	B [lbf/mph] 0.04400 0.21500 Fuel Temperature [*C] Fuel Density [kg/l] Net Heat. Val. [BTU/lb] Carb. Weight Frac.	C [libf/mph2] 0.038470 0.034900 15.00 0.8550 18295 0.8650
Dyno Type Street Load Road Load Fuel Data Fuel Type Fuel Analyze Date Fuel Manufacturer	SVOR A ^[lbf] 50.570 12.400 Diesel-FL0821BE10	B [lbf/mph] 0.04400 0.21500 Fuel Temperature [*C] Fuel Density [kg/l] Net Heat. Val. [BTU/lb]	C [libf/mph2] 0.038470 0.034900 15.00 0.8550 18295
Dyno Type Street Load Road Load Fuel Data Fuel Type Fuel Analyze Date Fuel Manufacturer Fuel Tank Number Fuel Charge	SVOR A ^[lbf] 50.570 12.400 Diesel-FL0821BE10	B [lbf/mph] 0.04400 0.21500 Fuel Temperature [°C] Fuel Density [kg/l] Net Heat. Val. [BTU/lb] Carb. Weight Frac. HC Ratio	C [libf/mph2] 0.038470 0.034900 15.00 0.8550 18295 0.8650 1.8742
Dyno Type Street Load Road Load Fuel Data Fuel Type Fuel Analyze Date Fuel Manufacturer Fuel Tank Number Fuel Charge Remarks: Weather Limit Data	SVOR A [lbf] 50.570 12.400 Diesel-FL0821BE10 DIESEL	B [ibf/mph] 0.04400 0.21500 Fuel Temperature [°C] Fuel Density [kg/l] Net Heat. Val. [ETU/lb] Carb. Weight Frac. HC Ratio OC Ratio	C [libf/mph2] 0.038470 0.034900 15.00 0.8550 18295 0.8650 1.8742
Dyno Type Street Load Road Load Fuel Data Fuel Type Fuel Analyze Date Fuel Manufacturer Fuel Tank Number Fuel Charge Remarks: Weather Limit Data Temp Min [deg F]	SVOR A ^[lbf] 50.570 12.400 Diesel-FL0821BE10	B [lbf/mph] 0.04400 0.21500 Fuel Temperature [*C] Fuel Density [kg/l] Net Heat. Val. [BTU/lb] Carb. Weight Frac. HC Ratio OC Ratio Dew Point Max [deg F]	C [libf/mph2] 0.038470 0.034900 15.00 0.8550 18295 0.8650 1.8742
Street Load Road Load Fuel Data Fuel Type Fuel Analyze Date Fuel Manufacturer Fuel Tank Number Fuel Charge Remarks: Weather Limit Data Temp Min [deg F] Temp Max [deg F]	SVOR A [lbf] 50.570 12.400 Diesel-FL0821BE10 DIESEL	B [ibf/mph] 0.04400 0.21500 Fuel Temperature [°C] Fuel Density [kg/l] Net Heat. Val. [ETU/lb] Carb. Weight Frac. HC Ratio OC Ratio	C [libf/mph2] 0.038470 0.034900 15.00 0.8550 18295 0.8650 1.8742 -1.0000
Dyno Type Street Load Road Load Fuel Data Fuel Type Fuel Analyze Date Fuel Manufacturer Fuel Tank Number Fuel Charge Remarks: Weather Limit Data Temp Min [deg F]	SVOR A [lbf] 50.570 12.400 Diesel-FL0821BE10 DIESEL	B [lbf/mph] 0.04400 0.21500 Fuel Temperature [*C] Fuel Density [kg/l] Net Heat. Val. [BTU/lb] Carb. Weight Frac. HC Ratio OC Ratio Dew Point Max [deg F]	C [libf/mph2] 0.038470 0.034900 15.00 0.8550 18295 0.8650 1.8742 -1.0000
Street Load Road Load Fuel Data Fuel Type Fuel Analyze Date Fuel Manufacturer Fuel Tank Number Fuel Charge Remarks: Weather Limit Data Temp Min [deg F] Temp Max [deg F]	SVOR A [lbf] 50.570 12.400 Diesel-FL0821BE10 DIESEL 68.00 86.00	B [lbf/mph] 0.04400 0.21500 Fuel Temperature [°C] Fuel Density [kg/l] Net Heat. Val. [ETU/lb] Carb. Weight Frac. HC Ratio OC Ratio Dew Point Max [deg F] Pressure Min [mbar]	C [libf/mph2] 0.038470 0.034900 15.00 0.8550 18295 0.8650 1.8742 -1.0000
Street Load Road Load Fuel Data Fuel Type Fuel Analyze Date Fuel Manufacturer Fuel Tank Number Fuel Charge Remarks: Weather Limit Data Temp Min [deg F] Temp Max [deg F] Dew Point Min [deg F] Fan Speed Data	SVOR A [lbf] 50.570 12.400 Diesel-FL0821BE10 DIESEL 68.00 86.00 15.01 RoadSpeed	B [lbf/mph] 0.04400 0.21500 Fuel Temperature [*C] Fuel Density [kg/l] Net Heat. Val. [ETU/lb] Carb. Weight Frac. HC Ratio OC Ratio Dew Point Max [deg F] Pressure Min [mbar] Pressure Max [mbar]	C [libf/mph2] 0.038470 0.034900 15.00 0.8550 18295 0.8650 1.8742 -1.0000
Street Load Road Load Fuel Data Fuel Type Fuel Analyze Date Fuel Manufacturer Fuel Tank Number Fuel Charge Remarks: Weather Limit Data Temp Min [deg F] Temp Max [deg F] Dew Point Min [deg F]	SVOR A [lbf] 50.570 12.400 Diesel-FL0821BE10 DIESEL 68.00 86.00 15.01	B [lbf/mph] 0.04400 0.21500 Fuel Temperature [°C] Fuel Density [kg/l] Net Heat. Val. [ETU/lb] Carb. Weight Frac. HC Ratio OC Ratio Dew Point Max [deg F] Pressure Min [mbar]	C [libf/mph2] 0.038470 0.034900 15.00 0.8550 18295 0.8650 1.8742 -1.0000

Test Data	FTP75			Operator	RED/	CTE	D	Speed Ta	ble	Date:	2022-04-27	
Test Number	ONT3_003	3224		Driver				Shift Table		Cold Start		
	DED	AOTED										
Vehicle		ACTED		Dyno				Fuel		Test T	iming	
/ehicle #	REDA	CTED		Inertia [6]	6000.00			Diesel-FI	_0821BE10	Start Time	08:58:34	
Model	1500			A (lbf)	12.400			Fuel type	DIESEL	End Time	10:41:19	
wodei	1500			B [lbt/mph]	0.21500			Density	0.8550			
/ear	2015	*		C [lbf/mph2]	0.034900			NHV	18295	Soak Time	549.8	
Displacement:				C	0.007000					Suak Tille	349.0	
этаргасеттетт.								CWF	0.8650			
Engine Family	FCRXT03.0	5P\/										
Frans	Automatic			Flow Stream	A decided Dist.							
Odometer ^(mile)	118787				ModalDirty TEST 1 AS							
Judinetei-	110707			Remark	IESI I AS	KECEIVED						
Bag Analysis												
PHASE 1	THC ^[ppmC]	CO[ppm]	CO ₂ ^[%]	NO _x [ppm]	N2O ^[ppm]	CH ₄ [ppm]	NMHC ^[ppm]			***************************************	14	
Range	100	500	4	30	1120	30	14143130		Temp. ^[*F]	79.36		3173
Zero Read	0.01	0.0	0.0	0,0		0.0			Press. (inHg)	28.96		13.03
Span Read	93.12	464.90	3.716	28.320		27,650			AH ^[g/kg]	35.44 7.790		0.1 506.2
Sample	17.25	62.50	0.977	3.867		9.350	6.164		Dist.[m]	3.60	Ph. Length ^{is}	
Mass.	0.901	6.587	1617.204	0.611		0.564	0.319		NO _x Corr.		Bag An. Del	
Mass per Dist.	0.2501	1.8292	449.118	0.1696		0.1567	0.0887		Dr. Viola	0.9123	Vio, Durat, [6]	
						0.1001	0.0007		Crank [s]	1.20		0.0 22.5
SS Massflow Particles [g/h]	0.0130		PSS Mass	per Dist. [g	/mile1		0.0005		Clark	1.20	re	22.5
PHASE 2	THC[ppmC1]	CO[ppm]	CO ₂ [%]	$NO_x^{[ppm]}$	N2O ^(ppm)	CH ₄ [ppm]	NMHC[ppm]		≄{*F1		(set)	
Range	100	500	1	30	,,,	30	1400110		Temp. ^['F] Press. ^[inHg]	78.97		4437
čero Value	0.01	0.0	0.0	0.0		0.0			RH ^(%)	28.96 35.20		19.07
Span Value	93.12	465.00	0.933	28.300		27.660			AH[g/kg]	7.637		506.3 1376.6
Sample	3.46	0.66	0.657	-0.029		3,472	-0.656		Dist. ^[mi]	3.87	Ph. Length ^{ls}	
Mass.	0.253	0.097	1522.734	0.000		0.293	0.000		NO _x Corr.		Bag An. Del	
Mass per Dist.	0.0654	0.0252	393,608	0.0000		0.0758	0.0000		Dr. Viola.	0	Vio. Durat, (*)	
									Dr. viola.			25.8
PSS Massflow Particles [g/h]	0.0017		PSS Mass	per Dist. [g.	/mile]		0.0001				, .	25.0
PHASE 3	THC ^(ppmC1)	CO[ppm]	CO ₂ ^[%]	NO _X [ppm]	N2O ^[ppm]	CH ₄ ^(ppm)	NMHC[ppm]		Temp, [*F]	80.34	Volume ^(scf)	3151
Range	100	500	1	30		30			Press.[inHg]	28.96		15.42
tero Value	0	-0.1	0.0	0.0		0.0			RH ^(%)	33.15		1924.0
Span Value	93.12	465.00	0.933	28.290		27.650			AH ^[g/kg]	7.520		2430.2
Sample	7	6.70	0.822	0.398		5.046	0.624		Dist. ^[mi]	3.60	Ph. Length ^{ls}	
Mass.	0,343	0.701	1352.255	0.062		0.302	0.032		NO _x Corr.		Bag An, Del	
Nass per Dist.	0.0952	0.1949	375.733	0.0172		0.0840	0.0089		Dr. Viola,	0	Vio. Durat.[8]	
									Crank [*]	1.30		27.0
SS Massflow Particles [g/h]	0.0089		PSS Mass	per Dist. [g/	mile]		0.0003				,	
otal Result (weighted)												
Veighted	THC ^[g/mile]	CO ^[g/mile]	CO ₂ [g/mile]	NO _x [g/mile]	N2O ^[g/mile]	CH ₄ ^[g/mite]	NMHC ^[g/mile]		HC+NO _x [g/	mite]	Fuel Econ	om
	0.1119	0.4457	400.20	0.0399		0.0948	0.0208		0.15174			-
(lass per Dist									1171/0		mile/gal	25.30
flass per Dist. flass per Dist. (rounded)	0.1119	0.4457	400.2	0.0399		0.0948	0.0208		0.1517		micrgai	20.01

Test Data:

FTP75

Test Number: ONT3_003224

Operator: Driver:

REDACTED

Date:

2022-04-27

Driver Violations

Number of Violations

Duration of Violations

(s)

Phase1 0 0.0

Phase2 0 0.0 Phase3 0 0.0

Number

Phase

Violation Begin **(s)**

Violation End (s)

Violation Duration

0.0

Scheduled Speed (mph)

Max Speed Deviation (mph)

No Violations In This Test

Driver Violations

Phase	1		
Analyze	r	Adi	ust

	Range Number	Range	Zero Value	Zero Set Value	Zero Offset	Span Value	Span Set Value	Span Offset	ReZero Value
CO ₂ (%)	2	ppm 4	ppm	ppm	%	ppm	ppm	%	ppm
CO₂(%) CO	2 1	4 500	0.00	0.00	-0.01	3.72	3.72	-0.03	0.00
NO _X	1	500 30	0.00 -0.01	0.00	0.00	464.90	464.90	0.00	0.03
THC (ppmC1)	2	30		0.00	-0.03	28.32	28.30	0.07	0.01
CH ₄	1	30	-0.08	0.00	-0.25	28.00	28.02	-0.07	0.00
		30	0.00	0.00	0.00	27.65	27.65	0.00	0.03
Analyzer Ci	<u>heck</u> Range		7	7 0-+		_		_	
	Number	Danas	Zero	Zero Set	Zero	Span	Span Set	Span	
	Rumber	Range ppm	Value	Value	Drift	Value	Value	Drift	
CO ₂ (%)	2	. 4	ppm 0.00	ррт 0.00	% -0.01	ppm	ppm	%	
CO	1	500	0.05	0.00		3.72	3.72	0.01	
NO _x	1	30	0.03		0.00	464.77	464.90	-0.03	
THC (ppmC1)	2	30		0.00	0.03	28.27	28.30	-0.18	
CH ₄	1		0.00	0.00	0.25	27.85	28.02	-0.50	
J114	'	30	0.00	0.00	-0.10	27.56	27.65	-0.30	
Phase 2 Analyzer Ad	diust								
	Range		Zero	Zero Set	Zero	Span	Span Set	Span	ReZero
	Number	Range	Value	Value	Offset	Value	Value	Offset	Value
		ppm	ppm	ppm	%	ppm	ppm	%	ppm
CO ₂ (%)	1	1	0.00	0.00	-0.02	0.93	0.93	0.00	0.00
CO (70)	1	500							
NO _X	1		~0.01 0.03	0.00	0.00	465.00	464.90	0.02	0.03
		30	0.03	0.00	0.11	28.30	28.30	0.00	0.03
THC (ppmC1)	2	100	0.00	0.00	0.00	93.11	93.11	0.00	0.02
CH₄	1	30	0.00	0.00	0.00	27.66	27.65	0.03	0.03
Analyzer Ch									
	Range		Zero	Zero Set	Zero	Span	Span Set	Span	
	Number	Range	Value	Value	Drift	Value	Value	Drift	
		ppm	ppm	ppm	%	ppm			
CO ₂ (%)	1	1 pp	0.00	0.00			ppm	% 1 1 1	
CO (70)					0.01	0.92	0.93	-1.11	
	1	500	0.03	0.00	0.00	464.66	464.90	-0.07	
NO _X	1	30	0.02	0.00	-0.03	28.27	28.30	-0.11	
THC (ppmC1)	2	100	0.05	0.00	0.03	93.06	93.11	-0.05	
CH₄	1	30	0.05	0.00	0.06	27.54	27.65	-0.40	
Phase 3									
Analyzer Ad			7	7					
	Range Number	Range	Zero Value	Zero Set Value	Zero Offset	Span Value	Span Set Value	Span Offset	ReZero Value
		ppm	ppm	ppm	%	ppm	ppm	%	
O ₂ (%)	1	1	0.00	0.00	-0.03	0.93	0.93		ppm O OO
	1							0.00	0.00
30		500 30	-0.06 0.01	0.00	-0.01	465.00	464.90	0.02	0.00
		.30	0.01	0.00	0.03	28.29	28.30	-0.03	0.04
NO _X	1	00	0.01						
NO _X THC (ppmC1)	2			0.00					
NO _X THC (ppmC1)		30	0.00		0.00	27.65	27.65	0.00	0.00
NO _X FHC (ppmC1) CH ₄	2 1			0.00	0.00	27.65	27.65	0.00	0.00
NO _X FHC (ppmC1) CH ₄	2 1 <u>neck</u> Range	30	0.00 Zero	0.00	Zero	27.65 Span	27.65 Span Set	0.00 Span	0.00
NO _X FHC (ppmC1) CH₄	2 1 <u>neck</u>		0.00	0.00 0.00					0.00
NO _X FHC (ppmC1) CH₄	2 1 <u>neck</u> Range	30	0.00 Zero	0.00 0.00 Zero Set	Zero Drift	Span Value	Span Set Value	Span Drift	0.00
NO _X FHC (ppmC1) CH ₄ Analyzer Ch	2 1 <u>neck</u> Range	30 Range	0.00 Zero Value ppm	0.00 0.00 Zero Set Value ppm	Zero Drift %	Span Value ppm	Span Set Value	Span Drift %	0.00
NO _X FHC (ppmC1) CH ₄ Analyzer Ch	2 1 neck Range Number	30 Range ppm 1	Zero Value ppm 0.00	0.00 0.00 Zero Set Value ppm 0.00	Zero Drift % 0.03	Span Value ppm 0.92	Span Set Value ppm 0.93	Span Drift % -0.81	0.00
NO _x IFHC (ppmC1) CH ₄ Analyzer Ch CO ₂ (%)	2 1 neck Range Number	Range ppm 1 500	Zero Value ppm 0.00 0.00	0.00 0.00 Zero Set Value ppm 0.00 0.00	Zero Drift % 0.03 0.00	Span Value ppm 0.92 464.79	Span Set Value ppm 0.93 464.90	Span Drift % -0.81 -0.04	0.00
CO NO _X THC (ppmC1) CH ₄ Analyzer Ch CO ₂ (%) CO NO _X	2 1 neck Range Number 1 1	30 Range ppm 1	Zero Value ppm 0.00	0.00 0.00 Zero Set Value ppm 0.00 0.00	Zero Drift % 0.03	Span Value ppm 0.92	Span Set Value ppm 0.93	Span Drift % -0.81	0.00
NO _x THC (ppmC1) CH ₄ Analyzer Ch CO ₂ (%)	2 1 neck Range Number	Range ppm 1 500	Zero Value ppm 0.00 0.00	0.00 0.00 Zero Set Value ppm 0.00 0.00	Zero Drift % 0.03 0.00	Span Value ppm 0.92 464.79	Span Set Value ppm 0.93 464.90	Span Drift % -0.81 -0.04	0.00

Operator

REDACTED

Driver

REDACTED Customer:

3182

Test Purpose: Conditioning:

Certification

Legislation:

Requirements (Bag) CERTIFICATION

Test Intent:

Emission Standards Default

TEST 1 AS RECEIVED

VIN

REDACTED

DY	VО	D	ata

	Road Load	Street Loa		
Inertia ^[lb]	6000.00			
A ^[N]	55.158	224.947		
B [N/km/h]	0.59426	0.12162		
C [N/km2/h2]	0.059940	0.066071		

	Phase1	Phase2	Phase3	Phase4	Weighted
Distance (m)					J
Target	5779.15	6210.95	5779.15		17769.25
Driven	5794.03	6225.59	5791.47		17811.09
Distance Rating (%)	0.2575	0.2356	0.2133		0.2355
Cycle Energy (MJ)					
Target	4.81	4.34	4.81		9.16
Driven	4.79	4.34	4.79		9.13
Distance per Energy Cycle (m/MJ)					
Target	4.81	4.34	4.81		1309.40
Driven	4.79	4.34	4.79		1316.09
Road Load Work Fraction					
Target	0.4357	0.3018	0.4357		0.3722
Driven	0.4427	0.3048	0.4439		0.3775
Inertial Work (MJ)					
Target	2.72	3.03	2.72		5.75
Driven	2.67	3.02	2.66		5.68
Inertial Work Fraction					
Target	0.5643	0.6982	0.5643		0.6278
Driven	0.5573	0.6952	0.5561		0.6225
Inertial Work Rating (%)	-1.7642	-0.4701	-1.8907		-1.1155
Absolute Speed Change (m/s)					
Target	204.87	340.91	204.88		545.79
Driven	201.71	339.32	201.67		541.01
Absolute Speed Change Rating (%)	-1.5441	-0.4657	~1.5654		-0.8751
Energy Rating (%)	-0.5390	-0.0449	-0.4398		-0.3512
Energy Economy Rating (%)	-0.8009	-0.2806	-0.6560		-0.5103

Operator

REDACTED

Driver

REDACTED

Customer:

Requirements (Bag)

3182

CERTIFICATION

Test Purpose: Certification Conditioning:

Legislation EPA1066 Emission : Default

Overall Status

Passed

Phase 1

Test Record #: ONT3_003224

Duration Test Hold (s)

Vehicle ID:

REDACTED

0

60

Passed

Comerci		Average	<u>Min</u>	<u>Max</u>	Low Limit	Upper Limit	<u>Status</u>
General Coll Tomporature	(0.5)	00.04	0.4.50				
Cell Temperature Barometer	(°C)	26.31	24.50	27.50	20.00	30.00	Passed
	(mbar)	980.70	980.60	980.70	800.00	1100.00	Passed
Dew Point Temperature Specific Humidity Test Cell	(°C)	9.78	8.20	10.10	-9.44	37.78	Passed
Dilution Air Temperature	(gr/lb)	54.53	48.73	55.56	38.50	87.50	Passed
Weighted Test Dilution Factor	(°C)	35.56 16.05	35.25	35.85	15.00	52.00	Passed
Dilution Factor	(-)				7.00	20.00	Passed
Fuel Economy	(-)	13.03			7.00	20.00	Passed
		22.47	0.05		10.00	50.00	Passed
	. ,	-					
		-					and a fight of problems from the first of
		-					
· ·			-0.50	0.01			the state of the s
Bag vs. Modal validation (CO2)	(%)	n.a.	-	-	-10.00	10.00	Passed
Ambient Concentrations							
HC	(ppm)	3.42			2.00	10.00	Passed
NO_x	(ppm)	0.12			-0.10		and the second second
co							
CO ₂							The second second
		2.14				10.00	Passed
N2O	(ppm)				0.20	0.50	
PM Filter Parameters							
Particulate Filter Temperature	(°C)	49.72	46.45	51.75	42.00	60.00	Passed
Filter Face Velocity	(cm/s)	90.43					the state of the s
Filter Face Velocity Points >100cm/s	(%)				0.00		1,03300
Secondary Dilution Air Temperature	(°F)				20.0		
Particulate Sample Proportionality					20.0	00.0	
Particulate Result Validation	(ug)	9.40			1.00	600.00	Passed
Test-Cycle Specific Validations							•
• •	/milas\	2.00					
	-						
·					504.1	508.1	and the second second
						_	
	(8)						
		7					Passed
	(=)	F (0.00			-		
	(S)				540.00	660.00	and the second of the second of the second
	(n)				_		Passed
Zero Offset Span Offset Zero Check Drift Span Check Drift Span Check Drift Bag vs. Modal Validation (CO2) Ambient Concentrations HC NO _x CO CO ₂ CH ₄ N2O PM Filter Parameters Particulate Filter Temperature Filter Face Velocity Filter Face Velocity Filter Face Velocity Points >100cm/s Secondary Dilution Air Temperature Particulate Sample Proportionality	(%) (%) (%) (%) (%) (ppm)	n.a. 3.42 0.12 0.12 479.80 2.14 49.72 90.43	-0.25 -0.07 -0.10 -0.50 -	0.00 0.07 0.25 0.01	-2.00 -2.00 -2.00 -2.00 -10.00 2.00 -0.10 0.00 300.00 1.30 0.20 42.00 0.00 20.0	2.00 2.00 2.00 2.00 10.00 10.00 15.00 650.00 10.00 0.50 60.00 100.00 5.00 30.0	Passed

0.00

Operator

REDACTED

Driver REDACTED Customer:

Conditioning:

Test Purpose: Certification

Legislation EPA1066

Requirements (Bag)

Emission Default

3182 CERTIFICATION

•			Phase 2			Overall Status	Passed
		Average	Min	Max	Low Limit	Upper Limit	Status
General							
Cell Temperature	(°C)	26.10	24.50	27.60	20.00	30.00	Passed
Barometer	. ,	980.69	980.60	980.70	800.00	1100.00	Passed
Dew Point Temperature	(°C)	9.50	8.00	10.70	-9.44	37.78	Passed
Specific Humidity Test Cell	(gr/lb)	53.46	48.16	57.92	38.50	87.50	Passed
Dilution Air Temperature	(°C)	36.23	35.55	36.55	15.00	52.00	Passed
Dilution Factor	(-)	19.07			7.00	20.00	Passed
Fuel Economy		25.84			10.00	50.00	Passed
Zero Offset	(%)	-	~0.02	0.11	-2.00	2.00	Passed
Span Offset	(%)	-	0.00	0.03	-2.00	2.00	Passed
Zero Check Drift	(%)	*	-0.03	0.06	-2.00	2.00	Passed
Span Check Drift	(%)	-	-1.11	-0.05	-2.00	2.00	Passed
Bag vs. Modal Validation (CO2)	(%)	n.a.			-10.00	10.00	Passed
Ambient Concentrations							
HC	(ppm)	3.42			2.00	10.00	Passed
NO _x	(ppm)	0.10			-0.10	10.00	Passed
CO	(ppm)	0.25			0.00	15.00	Passed
CO ₂	(ppm)	478.34			300.00	650.00	Passed
_ CH₄	(ppm)	2.13			1.30	10.00	Passed
N2O		2.13					Passed
1420	(ppm)				0.20	0.50	
PM Filter Parameters							
Particulate Filter Temperature	(°C)	49.77	46.45	51.75	42.00	60.00	Passed
Filter Face Velocity	(cm/s)	90.36			0.00	100.00	Passed
Particulate Result Validation	(ug)	2.60			2.00	600.00	Passed
Test-Cycle Specific Validations							
Phase Distance	(miles)	3.87			3.78	3,94	Passed
Sample Phase Time	(s)	869.4			868.3	872.3	Passed
Duration Phase 2	(s)	870.30					NA
Crank Time Phase1	(s)	1.2000			0	5	Passed
Crank Time Phase3	(s)	1.30			0	5	Passed
Crank Counts		1			0	1	Passed
Shutdown Time Phase 1					0	5	
Shutdown Time Phase 2					0	5	
Hot Soak Time	(s)	549.80			540.00	660.00	Passed
Test Hold Counts		0					Passed
Duration Test Hold	(s)	0.00			0	60	Passed

Operator
Test Purpose:
Conditioning:

REDACTED

Certification

D

Driver REDACTED Customer:

Legislation EPA1066

Requirements (Bag)

Emission : Default

3182

CERTIFICATION

				Phase 3			Passed
		<u>Average</u>	<u>Min</u>	Max	Low Limit	Upper Limit	<u>Status</u>
Generat Cell Temperature	(80)	26.86	25.50	07.50			
Barometer	(°C) (mbar)	26.65 980.69	25.50 980.60	27.50	20.00	30.00	Passed
Dew Point Temperature	(°C)	9.29	8.10	980.80 10.60	800.00	1100.00	Passed
Specific Humidity Test Cell	(gr/lb)	52.64	48.17	57.40	-9.44 38.50	37.78	Passed
Dilution Air Temperature	(\$1710) (*C)	36.19	35.55	39.45	15.00	87.50 52.00	Passed
Dilution Factor	(-)	15.42	33.33	39.43	7.00	20.00	Passed Passed
Fuel Economy		27.04			10.00	50.00	44 57 5 5 5
Zero Offset	(%)	27.04	-0.03	0.03	-2.00	2.00	Passed Passed
Span Offset	(%)	_	-0.03	0.03	-2.00	2.00	Passed
Zero Check Drift	(%)	_	-0.01	0.02	-2.00	2.00	Passed
Span Check Drift	(%)	_	-0.81	-0.04	-2.00	2.00	Passed
Bag vs. Modal Validation (CO2)	(%)	n.a.		-0.0-	-10.00	10.00	Passed
- ,					10.00	10.00	, asseu
Ambient Concentrations							
HC	(ppm)	3.50			2.00	10.00	Passed
NO _x	(ppm)	0.09			-0.10	10.00	Passed
CO	(ppm)	0.58			0.00	15.00	Passed
CO ₂	(ppm)	482.97			300.00	650.00	Passed
CH₄	(ppm)	2.16			1.30	10.00	Passed
N2O	(ppm)				0.20	0.50	1 20000
					0.20	0.30	
Condensation Potential PM Filter Parameters							
Particulate Filter Temperature	(°C)	49.79	46.45	51.75	42.00	60.00	Passed
Filter Face Velocity	(cm/s)	90.22	70.75	31.73	0.00	100.00	Passed
Particulate Result Validation	(ug)	6.40			2.00	600.00	Passed
	1-97	3.40			2.00	000.00	rasseu
Test-Cycle Specific Validations							
Phase Distance	(miles)	3.60			3.52	3,66	Passed
Sample Phase Time	(s)	506.3			504.2	508.2	Passed
Duration Phase 3	(s)	506.20					NA
Crank Time Phase1	(s)	1.2000			0	5	Passed
Crank Time Phase3	(\$)	1.30			0	5	Passed
Crank Counts		1			0	1	Passed
Shutdown Time Phase 1					0	5	
Shutdown Time Phase 3					0	5	
Hot Soak Time	(s)	549.80			540.00	660.00	Passed
Test Hold Counts		0					Passed
Duration Test Hold	(s)	0.00			0	60	Passed