CERT

NVFEL Laboratory Test Data

CVS

Final Laboratory Test Results- Refer to VERIFY Reports for Official Data

Test Number: 2012-0271-001 | Vehicle ID: DFA1-6.7-J-316

Test Information

Test Date:	8/1/2012	MFR Name	Ford Motor Company
Key Start / Hot Soak:	10:44:36 / 09:47	MFR Codes:	30 FMX
Fuel Container ID:	F00022	Config #:	00
Fuel Type:	19 Cert Diesel 7-15 ppm Sulfur	Transmission:	AUTO
Test Procedure:	2	Shift Schedule:	A09980005
Calculation Method:	Diesel	Beginning Odometer:	005031.0 MI
Pretest Remarks:		Drive Schedule:	ftp3bag
		Soak Period:	19.8 hours

Bag Data	THC / IntTHC	CO	NOx	CO2	CH4	NonMeth HC
Phase 1	(ppmC)	(ppm)	(ppm)	(%)	(ppm)	(ppmC)
Sample	18.730 / 20.114	65.738	6.193	1.542	4.520	
Ambient	1.923	0.642	0.028	0.045	2.001	
Net Concentration	17.029 / 18.414	65.170	6.168	1.502	2.751	15.423
Remarks:						
Phase 2						
Sample	2.962 / 2.551	0.407	0.431	0.833	2.401	
Ambient	1.869	0.044	0.012	0.046	2.004	
Net Concentration	1.209 / 0.798	0.366	0.420	0.790	0.522	0.231
Remarks:						
Phase 3						
Sample	2.586 / 2.561	0.545	4.457	1.356	2.243	
Ambient	1.844	0.025	0.045	0.047	2.002	
Net Concentration	0.929 / 0.903	0.523	4.416	1.314	0.443	0.422
Remarks:						
Phase 4						
Sample						
Ambient						
Net Concentration						

Remarks: This test has particulate results.

Results	THC / IntTHC	CO	NOx	CO2	CH4	NMHC / NMOG	Vol MPG
	(gpm)	(gpm)	(gpm)	(gpm)	(gpm)	(gpm)	(mpg)
Phase 1	- / 0.344	2.460	0.352	891.1	0.059	0.288	11.419
Phase 2	- / 0.024	0.022	0.038	743.6	0.018	0.007	13.759
Phase 3	- / 0.017	0.020	0.250	772.0	0.009	0.008	13.253
						(NMOG=NMHC)	
Weighted	0.08839	0.52786	0.16161	782.049	0.02424	0.06561	

Fuel Economy	Diesel MPG
Phase 1	11.36
Phase 2	13.68
Phase 3	13.18
Weighted	12.99

Dyno Settings	
Dyno #:	D329 - RWD
Inertia:	9500
EPA Set Co A:	32.83
EPA Set Co B:	0.0387
EPA Set Co C:	0.12078
Emiss-Bench:	Mexa 7200dle

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Results

	THC / IntTHC (grams)	CO (grams)	NOx (grams)	CO2 (grams)	CH4 (grams)	NMHC (grams)	Meth Response 1.087
Phase 1	- / 1.236	8.832	1.264	3199.0	0.214	1.035	
Phase 2	- / 0.091	0.084	0.146	2855.0	0.069	0.026	
Phase 3	- / 0.060	0.070	0.895	2766.0	0.034	0.028	

Test Conditions

	Phase 1	Phase 2	Phase 3	Phase 4
Barometer (inHg)	29.02	29.02	29.02	
Avg Cell Temp (degF)	72.44	72.48	72.50	
Dew Point (degF)	50.63	50.74	50.68	
Specific Humidity (grains/lbm)	56.56	56.79	56.65	
NOx Corr Factor	0.9202	0.9212	0.9206	
CO2 Dilution Factor	8.644	16.084	9.882	
CFV Vmix (scf @68F)	4086.24	6936.47	4040.33	
Total Vmix (scf@68F)	4110.28	6978.23	4064.47	
CVS Flow Rate Avg (scfm)	483.86	478.21	478.52	

Fan Placement: One Fan - Up - Front

Phase Time (secs)	506.70	870.30	506.60
Distance (miles)	3.590	3.840	3.583
Bag Analysis Time (secs)	1003.9	247.0	141.6

MFR Test Results for Procedure 2 CVS 75 and later (w/o can. load)

MFR Number	HC	CO	NOx	CO2	NMOG	NonMeth HC
1E+07	0.0860562	0.599203	0.121668	773.193	0	0.0599403

Odometer	MPG	PM
4774 M	13.1402	0.0039827

MPG is 1.12 % higher than EPA MPG

MFR Lab: APTL

Dyno: 5

Fuel: 19 Cert Diesel 7-15 ppm Sulfur

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Test Number: 2012-0271-001

Vehicle ID: DFA1-6.7-J-316

Test Information

Test Date: 8/1/2012
Key Start: 10:44:36 / 09:47
Fuel Container ID: F00022
Fuel Type: 19 Cert Diesel 7-15 ppm Sulfur
Test Procedure: 2
Calculation Method: Diesel
Pretest Remarks:

MFR Name: Ford Motor Company
MFR Codes: 30 FMX
Config #: 00
Transmission: AUTO
Shift Schedule: A09980005
Beginning Odometer: 005031.0 MI
Drive Schedule: ftp3bag
Soak Period: 19.8 hours

All filter weights are corrected for buoyancy.

Particulate	Filter Sampler	Filter No.	Tare (Pre Wt)	Gross (Post Wt)	Net Wt mg	Total Mass mg	Total Mass mg / mi	Filter comment
Phase 1	A	444693	145.6588	145.6724	0.01361	6.304	1.756	
	B	444743	145.0696	145.0858	0.01621	7.514	2.093	
	C	444746	143.5261	143.5312	0.00510	3.322	0.925	
Remarks:								
Phase 2	A	444694	145.6798	145.6834	0.00360	1.637	0.426	
	B	444744	140.9920	140.9957	0.00370	1.684	0.439	
	C	444747	143.9549	143.9568	0.00190	1.191	0.310	
Remarks:								
Phase 3	A	444695	144.3614	144.3657	0.00430	1.985	0.554	
	B	444745	140.9597	140.9657	0.00600	2.774	0.774	
	C	444748	144.1770	144.1855	0.00850	5.276	1.473	
Remarks:								
Phase 4								
Remarks:	This test has particulate results.							

Average Results

	Net Wt mg	Total Mass mg	Total Mass mg / mi
Phase 1	0.01164	5.713	1.592
Phase 2	0.00306	1.504	0.392
Phase 3	0.00627	3.345	0.934

All filter weights are corrected for buoyancy.

Weighted All Filters: 0.79010

Reference Filter Stability Check

2% of Avg Net or 0.01 mg	No.	Tare (Pre Wt)	Gross (Post Wt)	Net Wt mg	Stability Check PASS/FAIL
0.01	1	144.66328	144.66347	0.00019	PASS
	2	143.29486	143.29666	0.00180	PASS

Dyno #: D329 - RWD
Inertia: 9500
EPA Set Co A: 32.83
EPA Set Co B: 0.0387
EPA Set Co C: 0.12078

Emissions Bencl Mexa 7200dle

NVFEL Laboratory Test Data

PARTICULATE

Final Laboratory Test Results- Refer to VERIFY Reports for Official Data

Test Number: 2012-0271-001

Vehicle ID: DFA1-6.7-J-316

WEIGHING CHAMBER	Timestamp	Buoyancy Factor	Operator (id)	Chamber Temp (°F)	Dew Point (°F)	Barometer (°Hg)	Last Change in Status Status @ timestamp
Pre-test	8/1/12 7:35	1.0011106	022298	71.9	49.4	29.01	NORM @ 07/31/12 15:34:44
Post-test	8/1/12 13:27	1.0011098	022298	72	49.2	28.99	NORM @ 07/31/12 15:34:44

Test Conditions	Phase 1	Phase 2	Phase 3	Phase 4
Barometer (inHg)	29.02	29.02	29.02	
Avg Cell Temp (degF)	72.44	72.48	72.50	
Dew Point (degF)	50.63	50.74	50.68	
Specific Humidity (grains/lbm)	56.56	56.79	56.65	
NOx Corr Factor	0.9202	0.9212	0.9206	
Dilution Factor	8.64	16.08	9.88	
CFV Vmix (scf @68F)	4086.24	6936.47	4040.33	
Sample Volume A (scf @68F)	8.872	15.327	8.799	
Sample Volume B (scf @68F)	8.867	15.330	8.795	
Sample Volume C (scf @68F)	6.310	11.109	6.550	
Sample Volume D (scf @68F)				
Sample Volume Average (scf @68F)	8.016	13.922	8.048	
Total Vmix (scf @68F)	4110.28	6978.23	4064.47	
Phase Time (sec)	506.70	870.30	506.60	
Distance (miles)	3.590	3.840	3.583	
PSU Probe A (degC)				
PSU Probe B (degC)				
PSU Probe C (degC)				
PSU Dil Air A (degC)	42.6	43.3	40.7	
PSU Dil Air B (degC)	44.0	44.1	43.4	
PSU Dil Air C (degC)	43.3	42.8	41.6	
PSU Filter A (degC)	46.1	47.0	47.1	
PSU Filter B (degC)	47.3	47.6	48.1	
PSU Filter C (degC)	46.0	46.5	46.3	
PSU Dil Flow A (lpm)	14.9	15.0	14.8	
PSU Dil Flow B (lpm)	14.9	15.0	14.8	
PSU Dil Flow C (lpm)	23.4	23.2	22.2	
PSU A Proportionality				
PSU B Proportionality				
PSU C Proportionality				

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NVFEL Laboratory Test Data

Final Laboratory Test Results- Refer to VERIFY Reports for Official Data

Test Number: 2012-0271-002

Vehicle ID: DFA1-6.7-J-316

Test Information

Test Date: 8/1/2012
Key Start: 12:07:09
Fuel Container ID: F00022
Fuel Type: 19 Cert Diesel 7-15 ppm Sulfur
Test Procedure: 03 HWFET (hwfetprep_hwfet)
Calculation Method: Diesel
Pretest Remarks:

MFR Name: Ford Motor Company
MFR Codes: 30 FMX
Config #: 00
Transmission: AUTO
Shift Schedule: A09980011
Beginning Odometer: 005042.0 MI
Drive Schedule: hwfet_hwfet

Bag Data

Phase 1	THC / IntTHC (ppmC)	CO (ppm)	NOx (ppm)	CO2 (%)	CH4 (ppm)	NonMeth HC (ppmC)
Sample	2.098 / 1.983	0.721	3.348	2.411	1.915	
Ambient	2.012	0.069	0.104	0.046	1.949	
Net Concentration	0.448 / 0.333	0.664	3.263	2.373	0.317	-0.012

Remarks:

Phase 2

Sample
Ambient
Net Concentration

Remarks:

Phase 3

Sample
Ambient
Net Concentration

Remarks:

Phase 4

Sample
Ambient
Net Concentration

Remarks: This test has particulate results.

Results

	THC / IntTHC (gpm)	CO (gpm)	NOx (gpm)	CO2 (gpm)	CH4 (gpm)	NMHC / NMOG (gpm)	Vol MPG (mpg)
Phase 1	- / 0.003	0.012	0.093	698.4	0.003	0.000	14.651

(NMOG=NMHC)

Fuel Economy

	Diesel MPG
Phase 1	14.57

Dyno Settings

Dyno #: D329 - RWD
Inertia: 9500
EPA Set Co A: 32.83
EPA Set Co B: 0.0387
EPA Set Co C: 0.12078

Emiss-Bench: Mexa 7200dle

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Final Laboratory Test Results- Refer to VERIFY Reports for Official Data

Test Number: 2012-0271-002 Vehicle ID: DFA1-6.7-J-316

Results

	THC / IntTHC (grams)	CO (grams)	NOx (grams)	CO2 (grams)	CH4 (grams)	NMHC (grams)	Meth Response
Phase 1	- / 0.032	0.127	0.947	7137.9	0.035	0.000	1.087

Test Conditions

	Phase 1	Phase 2	Phase 3	Phase 4
Barometer (inHg)	29.02			
Avg Cell Temp (degF)	72.42			
Dew Point (degF)	50.91			
Specific Humidity (grains/lbm)	57.14			
NOx Corr Factor	0.9226			
CO2 Dilution Factor	5.557			
CFV Vmix (scf @68F)	5770.03			
Total Vmix (scf@68F)	5806.14			
CVS Flow Rate Avg (scfm)	452.55			

Fan Placement: One Fan - Up - Front

Phase Time (secs)	765.00
Distance (miles)	10.221
Bag Analysis Time (secs)	126.0

MFR Test Results for Procedure 3 HWFE

MFR Number	HC	CO	NOx	CO2	NMOG	NonMeth HC
1E+07	0.0006569	0.0121962	0.0831442	683.111	0	0

Odometer	MPG	PM
4774 M	14.8958	0.0023392

MPG is 2.24 % higher than EPA MPG

MFR Lab: APTL

Dyno: 5

Fuel: 19 Cert Diesel 7-15 ppm Sulfur

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Final Laboratory Test Results- Refer to VERIFY Reports for Official Data

Test Number: 2012-0271-002

Vehicle ID: DFA1-6.7-J-316

Test Information

Test Date: 8/1/2012
Key Start: 12:07:09
Fuel Container ID: F00022
Fuel Type: 19 Cert Diesel 7-15 ppm Sulfur
Test Procedure: 03 HWFET (hwfetprep_hwfet)
Calculation Method: Diesel
Pretest Remarks:

MFR Name: Ford Motor Company
MFR Codes: 30 FMX
Config #: 00
Transmission: AUTO
Shift Schedule: A09980011
Beginning Odometer: 005042.0 MI
Drive Schedule: hwfet_hwfet

All filter weights are corrected for buoyancy.

Particulate	Filter Sampler	Filter No.	Tare (Pre Wt)	Gross (Post Wt)	Net Wt mg	Total Mass mg	Total Mass mg / mi	Filter comment
Phase 1	A	416249	144.2522	144.2675	0.01537	6.751	0.661	
	B	416250	145.1730	145.1769	0.00396	1.738	0.170	
	C	444696	145.5422	145.5492	0.00696	4.185	0.409	

Remarks:

Phase 2

Remarks:

Phase 3

Remarks:

Phase 4

Remarks: This test has particulate results.

Average Results

	Net Wt mg	Total Mass mg	Total Mass mg / mi
Phase 1	0.00877	4.225	0.413

All filter weights are corrected for buoyancy.

Reference Filter Stability Check

2% of Avg Net or 0.01 mg	No.	Tare (Pre Wt)	Gross (Post Wt)	Net Wt mg	Stability Check PASS/FAIL
0.01	1	144.66332	144.66407	0.00075	PASS
	2	143.29500	143.29535	0.00035	PASS

Dyno #: D329 - RWD
Inertia: 9500
EPA Set Co A: 32.83
EPA Set Co B: 0.0387
EPA Set Co C: 0.12078

Emissions Bencl Mexa 7200dle

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Test Number: 2012-0271-002

Vehicle ID: DFA1-6.7-J-316

WEIGHING CHAMBER	Timestamp	Buoyancy Factor	Operator (id)	Chamber Temp (°F)	Dew Point (°F)	Barometer (°Hg)	Last Change in Status Status @ timestamp
Pre-test	8/1/12 8:21	1.0011108	022298	71.8	49.2	29.01	NORM @ 07/31/12 15:34:44
Post-test	8/1/12 14:20	1.0011098	022298	71.9	49.3	28.99	NORM @ 07/31/12 15:34:44

Test Conditions	Phase 1	Phase 2	Phase 3	Phase 4
Barometer (inHg)	29.02			
Avg Cell Temp (degF)	72.42			
Dew Point (degF)	50.91			
Specific Humidity (grains/lbm)	57.14			
NOx Corr Factor	0.9226			
Dilution Factor	5.56			
CFV Vmix (scf @68F)	5770.03			
Sample Volume A (scf @68F)	13.221			
Sample Volume B (scf @68F)	13.227			
Sample Volume C (scf @68F)	9.660			
Sample Volume D (scf @68F)				
Sample Volume Average (scf @68F)	12.036			
Total Vmix (scf @68F)	5806.14			
Phase Time (sec)	765.00			
Distance (miles)	10.221			
PSU Probe A (degC)				
PSU Probe B (degC)				
PSU Probe C (degC)				
PSU Dil Air A (degC)	42.1			
PSU Dil Air B (degC)	43.9			
PSU Dil Air C (degC)	42.4			
PSU Filter A (degC)	48.5			
PSU Filter B (degC)	48.9			
PSU Filter C (degC)	47.8			
PSU Dil Flow A (lpm)	14.7			
PSU Dil Flow B (lpm)	14.7			
PSU Dil Flow C (lpm)	22.6			
PSU A Proportionality				
PSU B Proportionality				
PSU C Proportionality				