


NVFEL Laboratory Test Data							CVS
Final Laboratory Test Results							
Test Number: 2014-0071-002				Vehicle ID: E350 BLUETEC			
	Test Date: 2/19/2014			MFR Name: MERCEDES BENZ			
	Key Start / Hot Soak: 13:56:22 / 09:23			MFR Codes: 200 MBX			
	Fuel Container ID: F00022			Config #: 00			
	Fuel Type: 19 Cert Diesel 7-15 ppm Sulfur			Transmission: AUTO			
	Test Procedure: 1			Shift Schedule: A09980005			
	Calculation Method: Diesel			Beginning Odometer: 002549.0 MI			
	Pretest Remarks:			Drive Schedule: ftp4bag			
				Soak Period: 24.9 hours			
Bag Data							
	THC / IntTHC	CO	NOx	CO2	CH4	NonMeth HC	
Phase 1	(ppmC)	(ppm)	(ppm)	(%)	(ppm)	(ppmC)	
Sample	11.929 / 12.237	22.111	2.358	1.055	6.253		
Ambient	3.855	0.089	0.015	0.045	2.046		
Net Concentration	8.379 / 8.687	22.029	2.345	1.014	4.368	3.991	
Remarks:							
Phase 2							
Sample	4.952 / 4.866	0.444	0.025	0.593	3.153		
Ambient	3.768	0.020	0.006	0.045	2.051		
Net Concentration	1.351 / 1.265	0.424	0.020	0.550	1.193	-0.017	
Remarks:							
Phase 3							
Sample	4.330 / 4.292	0.430	0.175	0.815	2.706		
Ambient	3.748	0.000	0.006	0.045	2.040		
Net Concentration	0.810 / 0.772	0.430	0.169	0.772	0.790	-0.077	
Remarks:							
Phase 4							
Sample	4.351 / 4.336	0.364	0.021	0.571	2.699		
Ambient	3.876	0.020	0.008	0.045	2.046		
Net Concentration	0.641 / 0.626	0.345	0.014	0.528	0.741	-0.170	
Remarks: <u>This test has particulate results.</u>							
Results							
	THC / IntTHC	CO	NOx	CO2	CH4	NMHC	
	(gpm)	(gpm)	(gpm)	(gpm)	(gpm)	(gpm)	
Phase 1	- / 0.112	0.571	0.089	413.0	0.065	0.051	
Phase 2	- / 0.026	0.018	0.001	359.2	0.028	0.000	
Phase 3	- / 0.010	0.011	0.006	314.5	0.012	0.000	
Phase 4	- / 0.049	0.014	0.001	344.2	0.018	0.000	
Weighted	0.03546	0.12975	0.02086	353.620	0.02820	0.01064	
Fuel Economy							
	Diesel MPG	Dyno Settings					
Phase 1	24.57	Dyno #: D329 - RWD					
Phase 2	28.32	Inertia: 4500					
Phase 3	32.35	EPA Set Co A: 16.62					
Phase 4	29.56	EPA Set Co B: -0.4083					
		EPA Set Co C: 0.02307					
Weighted	28.72	Emiss-Bench: Mexa 7200dle					
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**NVFEL Laboratory Test Data****CVS****Final Laboratory Test Results**

Test Number: 2014-0071-002

Vehicle ID: E350 BLUETEC

Results	THC / IntTHC	CO	NOx	CO2	CH4	NMHC	Meth Response
	(grams)	(grams)	(grams)	(grams)	(grams)	(grams)	1.075
Phase 1	- / 0.399	2.044	0.320	1478.0	0.232	0.183	
Phase 2	- / 0.100	0.068	0.005	1377.6	0.109	0.000	
Phase 3	- / 0.036	0.040	0.023	1129.6	0.042	0.000	
Phase 4	- / 0.000	0.055	0.003	1320.5	0.068	0.000	

Test Conditions

	Phase 1	Phase 2	Phase 3	Phase 4
Barometer (inHg)	28.90	28.91	28.92	28.92
Avg Cell Temp (degF)	74.06	74.08	74.10	74.13
Dew Point (degF)	47.52	47.49	47.20	47.34
Specific Humidity (grains/lbm)	50.49	50.42	49.83	50.10
NOx Corr Factor	0.8967	0.8965	0.8942	0.8952
CO2 Dilution Factor	12.655	22.571	16.442	23.46
CFV Vmix (scf @68F)	2785.69	4783.37	2794.56	4781.61
Total CVS Vmix (scf@68F)	2814.36	4832.60	2823.08	4830.59
CVS Flow Rate Avg (scfm)	329.47	325.77	330.39	329.54

Fan Placement: One Small Fan - Up - Front

Phase Time (secs)	507.30	871.00	507.50	870.60
Distance (miles)	3.579	3.835	3.592	3.836
Bag Analysis Time (secs)	928.2	120.2	929.4	132.8

	FTP B1	FTP B2	FTP B3	FTP B4	FTP-W	FTP4-W
IWR % diff	-3.113	-51.544	-1.109	0.223	-36.585	-20.183
ASCR % diff	-1.568	-17.968	-0.095	0.384	-12.298	-5.707
EER	-0.668	-76.512	-0.447	-0.104	-37.879	-16.476

NVFEL Laboratory Test Data

PARTICULATE

Final Laboratory Test Results

Test Number: 2014-0071-002

Vehicle ID: E350 BLUETEC

Test Information



Test Date: 2/19/2014
Key Start: 13:56:22 / 09:23
Fuel Container ID: F00022
Fuel Type: 19 Cert Diesel 7-15 ppm Sulfur
Test Procedure: 1
Calculation Method: Diesel
Pretest Remarks:

MFR Name: MERCEDES BENZ
MFR Codes: 200 MBX
Config #: 00
Transmission: AUTO
Shift Schedule: A09980005
Beginning Odometer: 002549.0 MI
Drive Schedule: ftp4bag
Soak Period: 24.9 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	777250	140.8266	140.8712	0.04461	13.133	3.669	
	B	777501	138.0429	138.0854	0.04245	12.504	3.493	
	C	777502	139.9698	140.0159	0.04603	13.561	3.789	
Remarks:								
Phase 2	A	777503	143.5022	143.5021	0.00000	0.000	0.000	
	B	777504	145.0432	145.0451	0.00190	0.559	0.146	
	C	777505	144.4771	144.4744	0.00000	0.000	0.000	
Remarks:								
Phase 3	A	777506	142.7112	142.7093	0.00000	0.000	0.000	
	B	777507	142.1975	142.1934	0.00000	0.000	0.000	
	C	777508	142.5387	142.5386	0.00000	0.000	0.000	
Remarks:								
Phase 4	A	777509	142.2025	142.2018	0.00000	0.000	0.000	
	B	777510	142.4073	142.4063	0.00000	0.000	0.000	
	C	777511	143.6312	143.6325	0.00132	0.393	0.102	
Remarks: This test has particulate results.								

Average Results

	Net Wt mg	Total Mass mg	Total Mass mg / mi
Phase 1	0.04436	13.066	3.651
Phase 2	0.00063	0.559	0.146
Phase 3	0.00000	0.000	0.000
Phase 4	0.00044	0.393	0.102

All filter weights are corrected for buoyancy.

Weighted All Filters:

0.82033

Reference Filter Stability Check

2% of Avg Net or 0.01 mg	No.	Tare (Pre Wt)	Gross (Post Wt)	Net Wt mg	Stability Check	Dyno #: D329 - RWD
0.01	1	142.21193	142.21358	0.00164	PASS/FAIL	Inertia: 4500
	2	143.45721	143.45884	0.00162	PASS	EPA Set Co A: 16.62
					PASS	EPA Set Co B: -0.4083
						EPA Set Co C: 0.02307

Emissions Bench Mexa 7200dle



NVFEL Laboratory Test Data
Final Laboratory Test Results

PARTICULATE

Test Number: 2014-0071-002

Vehicle ID: E350 BLUETEC

WEIGHING CHAMBER	Buoyancy	Operator	Chamber Temp	Dew Point	Barometer	Last Change in Status
Timestamp	Factor	(id)	(°F)	(°F)	("Hg)	Status @ timestamp
Pre-test 2/18/14 13:31	1.0011097	022298	72	48.9	28.98	NORM @ 02/18/14 09:36:46
Post-test 2/21/14 11:17	1.0010945	022298	71.8	49.4	28.57	NORM @ 02/20/14 19:48:55

Test Conditions	Phase 1	Phase 2	Phase 3	Phase 4
Barometer (inHg)	28.90	28.91	28.92	28.92
Avg Cell Temp (degF)	74.06	74.08	74.10	74.13
Dew Point (degF)	47.52	47.49	47.20	47.34
Specific Humidity (grains/lbm)	50.49	50.42	49.83	50.10
NOx Corr Factor	0.8967	0.8965	0.8942	0.8952
Dilution Factor	12.66	22.57	16.44	23.46
CFV Vmix (scf @68F)	2785.69	4783.37	2794.56	4781.61
Sample Volume A (scf @68F)	9.560	16.399	9.516	16.369
Sample Volume B (scf @68F)	9.555	16.423	9.502	16.360
Sample Volume C (scf @68F)	9.552	16.406	9.509	16.258
Sample Volume D (scf @68F)				
Sample Volume Average (scf @68F)	9.556	16.409	9.509	16.329
Total PM Vmix (scf @68F)	2814.36	4832.60	2823.08	4830.592121
Phase Time (sec)	507.30	871.00	507.50	870.60
Distance (miles)	3.579	3.835	3.592	3.836
PSU Probe A (degC)				
PSU Probe B (degC)				
PSU Probe C (degC)				
PSU Dil Air A (degC)	41.1	43.8	40.8	40.7
PSU Dil Air B (degC)	41.5	40.9	41.1	40.2
PSU Dil Air C (degC)	40.1	41.4	40.2	40.1
PSU Filter A (degC)	45.6	46.8	46.6	46.7
PSU Filter B (degC)	45.2	46.3	45.5	46.3
PSU Filter C (degC)	45.0	45.8	45.4	46.0
PSU Dil Flow A (lpm)	20.0	19.8	19.9	20.0
PSU Dil Flow B (lpm)	20.0	19.8	19.9	20.0
PSU Dil Flow C (lpm)	20.0	19.7	19.9	20.1
PSU A Proportionality				
PSU B Proportionality				
PSU C Proportionality				

NVFEL Laboratory Test Data

CVS

Final Laboratory Test Results

Test Number: 2014-0071-003

Vehicle ID: E350 BLUETEC

Test Information



Test Date: 2/19/2014

Key Start: 15:33:06

Fuel Container ID: F00022

Fuel Type: 19 Cert Diesel 7-15 ppm Sulfur

Test Procedure: 3

Calculation Method: Diesel

Pretest Remarks:

MFR Name: MERCEDES BENZ

MFR Codes: 200 MBX

Config #: 00

Transmission: AUTO

Shift Schedule: A09980011

Beginning Odometer: 002563.0 MI

Drive Schedule: hwfet_hwfet

Bag Data

Phase 1

	THC / IntTHC (ppmC)	CO (ppm)	NOx (ppm)	CO2 (%)	CH4 (ppm)	NonMeth HC (ppmC)
Sample	4.054 / 4.056	0.715	0.056	1.014	2.612	
Ambient	3.648	0.015	0.019	0.046	2.011	
Net Concentration	0.682 / 0.685	0.701	0.039	0.972	0.753	-0.124

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 (gpm)	Vol MPG (mpg)
Phase 1	- / 0.005	0.010	0.001	207.9	0.006	0.000	49.200

Fuel Economy

Phase 1 Diesel MPG
48.93

Dyno Settings

Dyno #: D329 - RWD

Inertia: 4500

EPA Set Co A: 16.62

EPA Set Co B: -0.4083

EPA Set Co C: 0.02307

Emiss-Bench: Mexa 7200dle

**NVFEL Laboratory Test Data****CVS****Final Laboratory Test Results**

Test Number: 2014-0071-003

Vehicle ID: E350 BLUETEC

Results	THC / IntTHC	CO	NOx	CO2	CH4	NMHC	Meth Response
	(grams)	(grams)	(grams)	(grams)	(grams)	(grams)	
Phase 1	- / 0.047	0.097	0.008	2122.0	0.060	0.000	1.075

Test Conditions

	<u>Phase 1</u>	<u>Phase 2</u>	<u>Phase 3</u>	<u>Phase 4</u>
Barometer (inHg)	28.95			
Avg Cell Temp (degF)	74.15			
Dew Point (degF)	47.25			
Specific Humidity (grains/lbm)	49.87			
NOx Corr Factor	0.8944			
CO2 Dilution Factor	13.203			
CFV Vmix (scf @68F)	4172.43			
Total CVS Vmix (scf@68F)	4215.40			
CVS Flow Rate Avg (scfm)	327.25			

Fan Placement: One Small Fan - Up - Front

Phase Time (secs)	765.00
Distance (miles)	10.205
Bag Analysis Time (secs)	57.9

	<u>HWY</u>
IWR % diff	-5.421
ASCR % diff	-4.196
EER	-0.683

NVFEL Laboratory Test Data
Final Laboratory Test Results

PARTICULATE

Test Number: 2014-0071-003

Vehicle ID: E350 BLUETEC

Test Information



Test Date: 2/19/2014
Key Start: 15:33:06
Fuel Container ID: F00022
Fuel Type: 19 Cert Diesel 7-15 ppm Sulfur
Test Procedure: 3
Calculation Method: Diesel
Pretest Remarks:

MFR Name: MERCEDES BENZ
MFR Codes: 200 MBX
Config #: 00
Transmission: AUTO
Shift Schedule: A09980011
Beginning Odometer: 002563.0 MI
Drive Schedule: hwfet_hwfet

All filter weights are corrected for buoyancy.

<u>Particulate</u>	<u>Filter</u> Sampler	<u>Filter</u> No.	<u>Tare</u> (Pre Wt)	<u>Gross</u> (Post Wt)	<u>Net Wt</u> mg	<u>Total Mass</u> mg	<u>Total Mass</u> mg / mi	<u>Filter</u> comment
Phase 1	A	777521	141.8930	141.8947	0.00178	0.524	0.051	
	B	777522	142.7770	142.7729	0.00000	0.000	0.000	
	C	777523	141.3986	141.3986	0.00000	0.000	0.000	

Remarks:

Phase 2

Remarks:

Phase 3

Remarks:

Phase 4

Remarks: This test has particulate results.

Average Results

	<u>Net Wt</u> mg	<u>Total Mass</u> mg	<u>Total Mass</u> mg / mi
Phase 1	0.00059	0.524	0.051

All filter weights are corrected for buoyancy.

Reference Filter Stability Check

2% of Avg Net or 0.01 mg	No.	<u>Tare</u> (Pre Wt)	<u>Gross</u> (Post Wt)	<u>Net Wt</u> mg	<u>Stability Check</u> PASS/FAIL	Dyno #: D329 - RWD Inertia: 4500
0.01	1	142.21160	142.21348	0.00188	PASS	EPA Set Co A: 16.62
	2	143.45537	143.45433	-0.00104	PASS	EPA Set Co B: -0.4083
						EPA Set Co C: 0.02307

Emissions Bench Mexa 7200dle

**NVFEL Laboratory Test Data****PARTICULATE****Final Laboratory Test Results**

Test Number: 2014-0071-003

Vehicle ID: E350 BLUETEC

<u>WEIGHING CHAMBER</u>	<u>Buoyancy</u>	<u>Operator</u>	<u>Chamber Temp</u>	<u>Dew Point</u>	<u>Barometer</u>	<u>Last Change in Status</u>	
Timestamp	Factor	(id)	(°F)	(°F)	("Hg)	Status @ timestamp	
Pre-test	2/19/14 7:57	1.0011003	022298	72.1	49.2	28.74	NORM @ 02/18/14 09:36:46
Post-test	2/21/14 9:48	1.0010931	022298	72	49.3	28.55	NORM @ 02/20/14 19:48:55

<u>Test Conditions</u>	<u>Phase 1</u>	<u>Phase 2</u>	<u>Phase 3</u>	<u>Phase 4</u>
Barometer (inHg)	28.95			
Avg Cell Temp (degF)	74.15			
Dew Point (degF)	47.25			
Specific Humidity (grains/lbm)	49.87			
NOx Corr Factor	0.8944			
Dilution Factor	13.20			
CFV Vmix (scf @68F)	4172.43			
Sample Volume A (scf @68F)	14.321			
Sample Volume B (scf @68F)	14.324			
Sample Volume C (scf @68F)	14.329			
Sample Volume D (scf @68F)				
Sample Volume Average (scf @68F)	14.324			
Total PM Vmix (scf @68F)	4215.40			
Phase Time (sec)	765.00			
Distance (miles)	10.205			
PSU Probe A (degC)				
PSU Probe B (degC)				
PSU Probe C (degC)				
PSU Dil Air A (degC)	41.8			
PSU Dil Air B (degC)	40.3			
PSU Dil Air C (degC)	40.9			
PSU Filter A (degC)	46.9			
PSU Filter B (degC)	46.5			
PSU Filter C (degC)	46.2			
PSU Dil Flow A (lpm)	19.9			
PSU Dil Flow B (lpm)	19.9			
PSU Dil Flow C (lpm)	19.8			
PSU A Proportionality				
PSU B Proportionality				
PSU C Proportionality				

SUGGESTED CITATION: 2013 Mercedes E350 BlueTEC Vehicle Diesel Fuel – Test Data Package. Version 2018-07. Ann Arbor, MI: US EPA, National Vehicle and Fuel Emissions Laboratory, National Center for Advanced Technology, 2018.