



NRTC Test Report

Test 150727_709006_EW1_22304_NRTC_1

Cycle Number 1

General Data

Test Date	7/27/2015 10:57	Test Cell	EW1
Test Duration	36 min	Technician	NSENECAL
Certification Test	No	Intake Air Temp	25.0 °C
Start	Cold	Absolute Humidity	8.20 g/kg
Regen	No	Barometric Pressure	758.0 kPa
Customer	ISUZU	Engine Hours	8268
Engine ID	709006	Fuel	CERT DIESEL 140516
Aftertreatment 1	DOC	Aftertreatment 3	-
Aftertreatment 2	DNX	Aftertreatment 4	-
Playback File	150413_709006_EW1_21176_FLS_1_NRTC_PB_1.txt		
Engine Calibration	SCRGuidance_SGS1_1		

Test Results

Fuel Meter BSFC	244.04	g/kW.hr		Cycle Work			15.81	kW.hr				
Carbon Balance BSFC	234.59	g/kW.hr		NO _x Correction Factor			0.962					
NMHC												
Concentration Units	CO ₂	CO	NO _x	N ₂ O	HC	CH ₄	NMHC	NO _x	PM	MSS	SM	
	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	-	mg/m ³	mg/m ³	
Avg. Concentration	0.800	3.033	8.828	-	3.285	1.420	1.695	-	-	0.597	-	
Mass Emissions (g)	11834	2.380	13.94	-	0.495	0.009	0.479	14.42	0.698	0.513	-	
Brake Specific Emissions (g/kW.h)	749	0.151	0.882	-	0.031	0.001	0.030	0.912	0.044	0.032	-	

Quality Checks

Analyzer Check	PASSED	Cold Start Check	PASSED
Regression Check	PASSED	Combustion Air Check	PASSED
Background Check	FAILED	Intercooler Check	PASSED
PM Sampler Check	FAILED	Fuel/Carbon Balance Check	PASSED
Altitude Simulation Check	PASSED	Aqueous Condensation Check	PASSED
CVS Check	PASSED		

Analyzer Check

PASSED

	Units	Range	Pre-Test		Post-Test		Peak Conc	Avg. Conc	Drift%	Drift% (FEL)	
			Zero	Span	Zero	Span					
CO ₂ Analyzer	%	5	0.00	4.53	0.00	4.51	1.99	0.80	0.0%	-	PASSED
CO Analyzer	ppm	200	-0.04	182.81	1.73	183.66	68.14	3.03	-2.1%	-0.1%	PASSED
NO _x Analyzer	ppm	300	-0.08	272.69	-0.43	269.39	137.46	8.83	0.9%	1.9%	PASSED
N ₂ O Analyzer	ppm	-	-	-	-	-	-	-	-	-	N/A
HC Analyzer	ppm	90	0.06	90.72	-0.02	91.17	13.57	3.29	0.0%	-	PASSED
CH ₄ Analyzer	ppm	100	0.00	91.33	-0.06	90.70	2.02	1.42	0.3%	-	PASSED
NMHC	ppm	-	-	-	-	-	11.83	1.69	0.0%	0.0%	PASSED

Regression Check

PASSED

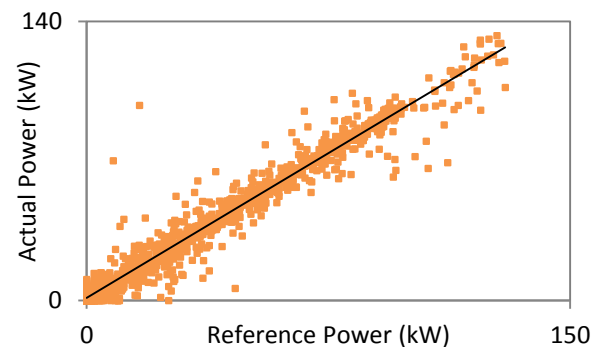
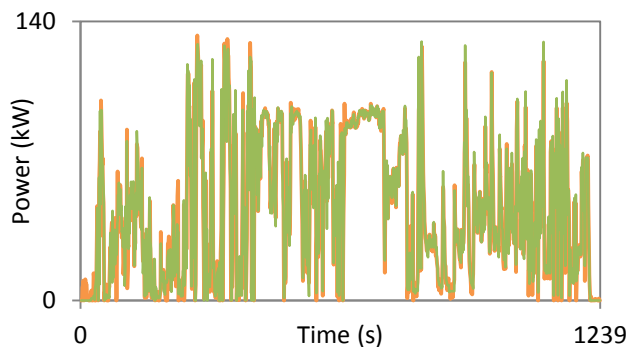
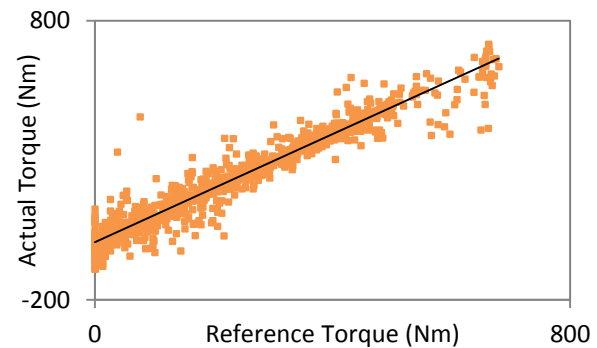
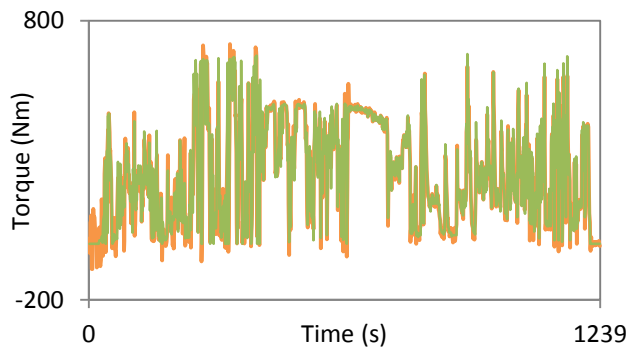
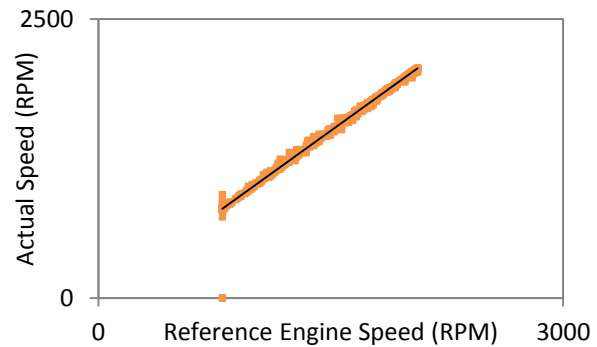
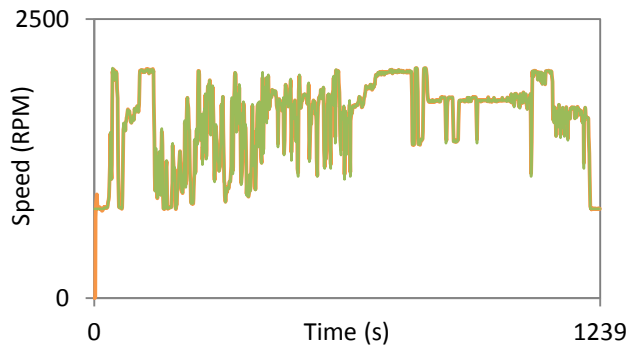
Time Lag 0.4 seconds

Max Test Speed 2060 RPM
Max Mapped Torque 689 Nm

Warm Idle Speed 800 RPM
Max Mapped Power 138 kW

		Lower Limit Slope	Actual Slope	Upper Limit Slope	Lower Limit Intercept	Actual Intercept	Upper Limit Intercept
Speed	RPM	0.95	1.00	1.03	-80.0	-1.8	80.0
Torque	Nm	0.83	0.97	1.03	-13.8	6.8	13.8
Power	kW	0.83	0.97	1.03	-2.8	1.3	2.8

		Actual SEE	Upper Limit SEE	Lower Limit R ²	Actual R ²	Number of Points	
Speed	RPM	34.3	103.0	0.97	0.99	1238	PASSED
Torque	Nm	41.4	68.9	0.85	0.94	1238	PASSED
Power	kW	6.8	13.8	0.91	0.96	1238	PASSED





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Background Check

FAILED

	Units	Pre-Test	Post-Test	Min	Max	Avg. FEL	Drift% FEL	
CO ₂	%	0.041	0.042	0.03	0.05	0.772	0.1%	PASSED
CO	ppm	0.678	0.836	-0.1	2	80.788	0.2%	PASSED
NO _x	ppm	0.267	-0.112	-0.1	0.3	4.035	9.4%	FAILED
HC	ppm	2.482	2.376	1.5	3.5	0.000	-	N/A
HHC	ppm	2.692	2.586	1.5	3.5	0.000	-	N/A
CH ₄	ppm	1.594	1.596	1	3	0.000	-	N/A
NMHC	ppm	0.697	0.588	-0.2	2	6.196	1.7%	PASSED
NMHC + Nox	ppm	0.964	0.477	-0.3	2.3	NaN	0.8%	PASSED

PM Sampler Check

FAILED

	Units	Minimum	Average	Maximum	Lower Limit	Upper Limit	
Filter Temp	°C	40.1	43.1	44.7	42	52	FAILED
Secondary Dil Temp	°C	30.2	31.2	31.7	20	30	FAILED
SEE (Sample/Total)	%	-	0.24%	-	-	3.50%	N/A
Primary Dilution	-	2.12	-	-	2	-	PASSED
Secondary Dilution	-	1.00	-	-	-	-	N/A
Total Dilution	-	2.12	-	-	5	-	FAILED
PM Filter Tare	mg	137.7375	Average Raw Bench Flow Rate		scfm	1.17	
PM Filter Gross	mg	138.4329	Maximum Raw Exhaust Flow*		scfm	680.21	
			Average Dilute Exhaust Flow		scfm	1439.24	
			* Calculated as the maximum value of Raw Exhaust				

Altitude Simulation Check

PASSED

	Units	Minimum	Average	Maximum	Lower Limit	Upper Limit	
Barometric Pressure	mmHg	752.0	758.0	765.2	738.0	778.0	PASSED
Exhaust Pressure	kPa	-	-	-	-	-	N/A
CFV Pressure	kPa	99.6	100.5	101.7	-	-	N/A

CVS Check

PASSED

	Units	Minimum	Average	Maximum	Lower Limit	Upper Limit	
CVS Flow	scfm	1404.1	1439.2	1477.1	1381.7	1496.8	PASSED
Tracer Agreement	%	-	0.04	-	0.02	0.06	N/A
Dilution Air Temp	°C	25.6	26.1	26.7	20.0	30.0	PASSED

Cold Start Check

PASSED

	Units	At Test Start	Lower Limit	Upper Limit	
Oil Temperature	°C	21.8	20	30	PASSED
Coolant Temperature	°C	21.8	20	30	PASSED

Combustion Air Check

PASSED

	Units	Minimum	Average	Maximum	Lower Limit	Upper Limit	
Combustion Air Temp	°C	24.3	25.0	25.7	20	30	PASSED
Combustion Air Dew Temp	°C	10.7	11.0	11.5	-	-	N/A
NO _x Correction Factor	-	0.959	0.962	0.966	-	-	N/A



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Intercooler Check

PASSED

	Units	Minimum	Average	Maximum	Lower Limit	Upper Limit	
Intercooler 1 Glycol	°C	24.7	25.2	25.6	20	30	PASSED
Intercooler 2 Glycol	°C	-	-	-	-	-	N/A

Fuel/Carbon Balance Check

PASSED

Fuel Meter	Carbon Balance	Fuel Meter	Carbon Balance	Percent	Upper	
g	g	g/kW.hr	g/kW.hr	Difference	Limit	
3858	3709	244.04	234.59	3.95%	6.00%	PASSED

Aqueous Condensation Check

PASSED

Dil Exh Dew Point Above Min Tunnel Temp (s)	0	Fraction of Test Time	0.00	PASSED
Maximum Potential Fraction for Aqueous Drop Out	0			PASSED
Accumulative Potential Fraction for Aqueous Drop Out	0			PASSED

