



RMCNR Test Report

Test 150817_709006_EW1_22533_RMCNR_1

Cycle Number 1

General Data

Test Date	8/17/2015 15:30	Test Cell	EW1
Test Duration	2 hr, 44 min	Technician	MJONESHOFFMAN
Certification Test	No	Intake Air Temp	25.8 °C
Start	Hot	Absolute Humidity	12.46 g/kg
Regen	No	Barometric Pressure	758.0 kPa
Customer	ISUZU	Engine Hours	8370
Engine ID	709006	Fuel	CERT DIESEL 150728
Aftertreatment 1	DOC	Aftertreatment 3	DNX
Aftertreatment 2	DPF	Aftertreatment 4	-
Playback File	150413_709006_EW1_21176_FLS_1_RMCNR_PB.txt		
Engine Calibration	SCRGuidance_SGS1CSF_1		

Test Results

Fuel Meter BSFC	222.12	g/kW.hr		Cycle Work		35.10	kW.hr				
Carbon Balance BSFC	221.69	g/kW.hr		NO _x Correction Factor		1.028					
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	1.190	0.152	1.565	-	2.023	1.435	0.416	-	-	0.006	-
Mass Emissions (g)	24846	0.197	3.42	-	0.135	0.001	0.132	3.55	0.068	0.007	-
Brake Specific Emissions (g/kW.h)	708	0.006	0.097	-	0.004	0.000	0.004	0.101	0.002	0.000	-

Quality Checks

Analyzer Check	PASSED	Cold Start Check	N/A
Regression Check	PASSED	Combustion Air Check	PASSED
Background Check	PASSED	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	0.01	4.49	0.00	4.52	2.33	1.19	0.9%	-	PASSED
CO Analyzer	ppm	200	0.36	179.98	-0.04	183.53	0.66	0.15	-6.5%	0.0%	PASSED
NO _x Analyzer	ppm	300	0.07	265.42	0.00	274.50	14.39	1.56	2.2%	0.5%	PASSED
N ₂ O Analyzer	ppm	-	-	-	-	-	-	-	-	-	N/A
HC Analyzer	ppm	90	-0.11	90.48	-0.08	91.06	2.38	2.02	0.3%	-	PASSED
CH ₄ Analyzer	ppm	100	0.00	91.41	-0.10	91.28	1.76	1.43	2.3%	-	PASSED
NMHC	ppm	-	-	-	-	-	0.53	0.42	0.2%	0.0%	PASSED
NO _x + NMHC	ppm	-	-	-	-	-	14.88	1.98	2.1%	-	N/A

Regression Check

PASSED

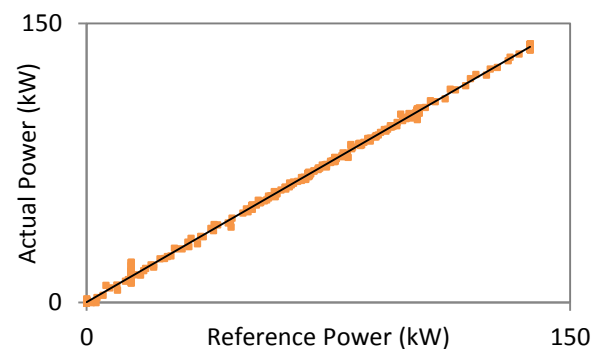
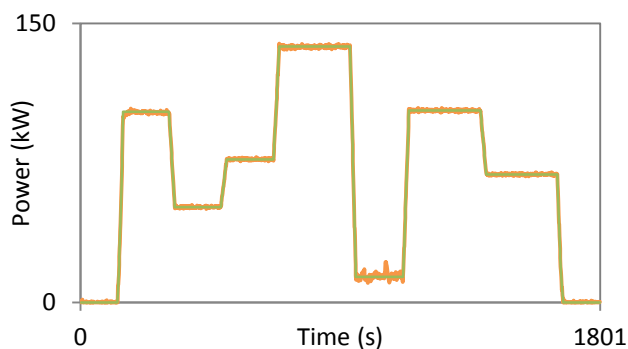
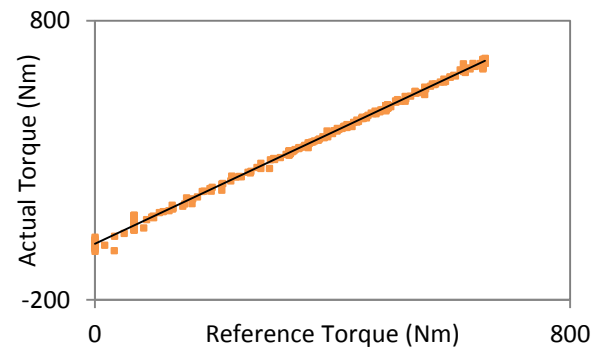
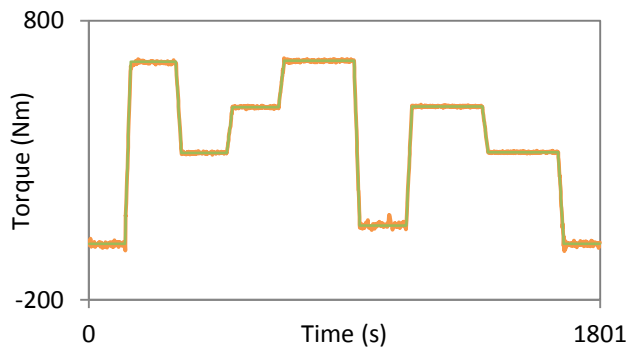
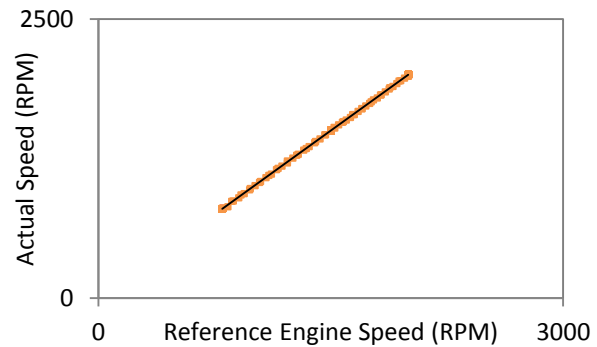
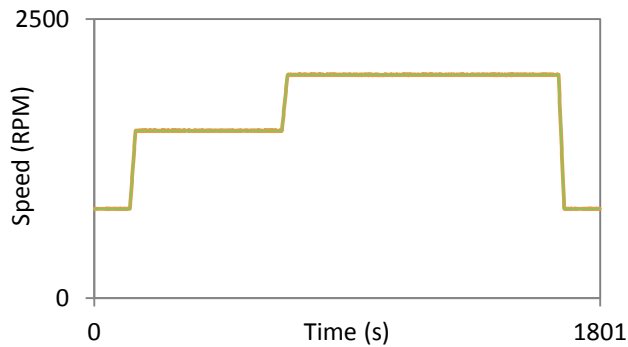
Time Lag 0.4 seconds

Max Test Speed 2000 RPM
Max Mapped Torque 689 Nm

Warm Idle Speed 794 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	-79.4	-0.1	79.4
Torque	Nm	0.83	1.00	1.03	-13.8	0.4	13.8
Power	kW	0.83	1.00	1.03	-2.8	0.2	2.8

		Actual SEE	Upper Limit SEE	Lower Limit R ²	Actual R ²	Number of Points	
Speed	RPM	2.4	100.0	0.97	1.00	1800	PASSED
Torque	Nm	5.0	68.9	0.85	1.00	1800	PASSED
Power	kW	0.8	13.8	0.91	1.00	1800	PASSED





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Background Check

PASSED

	Units	Pre-Test	Post-Test	Min	Max	Avg. FEL	Drift% FEL	
CO ₂	%	0.042	0.044	0.03	0.05	1.160	0.2%	PASSED
CO	ppm	0.089	0.114	-0.1	2	128.435	0.0%	PASSED
NO _x	ppm	0.080	0.120	-0.1	0.3	6.415	0.6%	PASSED
HC	ppm	1.992	2.013	1.5	3.5	0.000	-	N/A
HHC	ppm	2.122	2.142	1.5	3.5	0.000	-	N/A
CH ₄	ppm	1.757	1.749	1	3	0.000	-	N/A
NMHC	ppm	0.025	0.054	-0.2	2	9.850	0.3%	PASSED
NMHC + Nox	ppm	0.105	0.174	-0.3	2.3	NaN	2.3%	PASSED

PM Sampler Check

FAILED

	Units	Minimum	Average	Maximum	Lower Limit	Upper Limit	
Filter Temp	°C	41.8	46.5	48.3	42	52	FAILED
Secondary Dil Temp	°C	30.6	32.0	32.7	20	30	FAILED
SEE (Sample/Total)	%	-	0.40%	-	-	3.50%	N/A
Primary Dilution	-	3.95	-	-	2	-	PASSED
Secondary Dilution	-	1.00	-	-	-	-	N/A
Total Dilution	-	3.95	-	-	5	-	FAILED
PM Filter Tare	mg	-	Average Raw Bench Flow Rate		scfm	1.17	
PM Filter Gross	mg	-	Maximum Raw Exhaust Flow*		scfm	351.26	
			Average Dilute Exhaust Flow		scfm	1383.05	
			* Calculated as the maximum value of Raw Exhaust				

Altitude Simulation Check

PASSED

	Units	Minimum	Average	Maximum	Lower Limit	Upper Limit	
Barometric Pressure	mmHg	757.0	758.0	758.7	738.0	778.0	PASSED
Exhaust Pressure	kPa	-	-	-	-	-	N/A
CFV Pressure	kPa	752.5	754.3	756.3	-	-	N/A

CVS Check

PASSED

	Units	Minimum	Average	Maximum	Lower Limit	Upper Limit	
CVS Flow	scfm	1339.0	1383.0	1429.1	1327.7	1438.4	PASSED
Tracer Agreement	%	-	0.03	-	0.02	0.06	N/A
Dilution Air Temp	°C	25.0	25.7	26.6	20.0	30.0	PASSED

Cold Start Check

N/A

	Units	At Test Start	Lower Limit	Upper Limit	
Oil Temperature	°C	-	-	-	N/A
Coolant Temperature	°C	-	-	-	N/A

Combustion Air Check

PASSED

	Units	Minimum	Average	Maximum	Lower Limit	Upper Limit	
Combustion Air Temp	°C	25.5	25.8	26.0	20	30	PASSED
Combustion Air Dew Temp	°C	15.6	17.4	18.6	-	-	N/A
NO _x Correction Factor	-	1.007	1.028	1.043	-	-	N/A



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Intercooler Check

PASSED

	Units	Minimum	Average	Maximum	Lower Limit	Upper Limit	
Intercooler 1 Glycol	°C	24.2	24.8	25.3	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	
7796	7781	222.12	221.69	0.19%	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

