

Chassis Dynamometer Testing
Using the EUDC Test Cycle

For
Light Duty Automobiles

For:
SaviCorp
2530 South Birch Street
Santa Ana, CA 92707

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Conducted by
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Fullerton, CA



Introduction

This brief report provides exhaust emission results when testing a 2008 Toyota Highlander vehicle on a 48" chassis dynamometer. The Extra Urban Driving Cycle (EUDC) was used for test comparison of the baseline followed by two tests using the same vehicle equipped with the SaviCorp DynoValve. In this protocol the test vehicle operates for 400 seconds over four different speeds with maximum speed at 90 kmh.

The test results are shown as follows:

Table 1 – EUDC TEST CYCLE

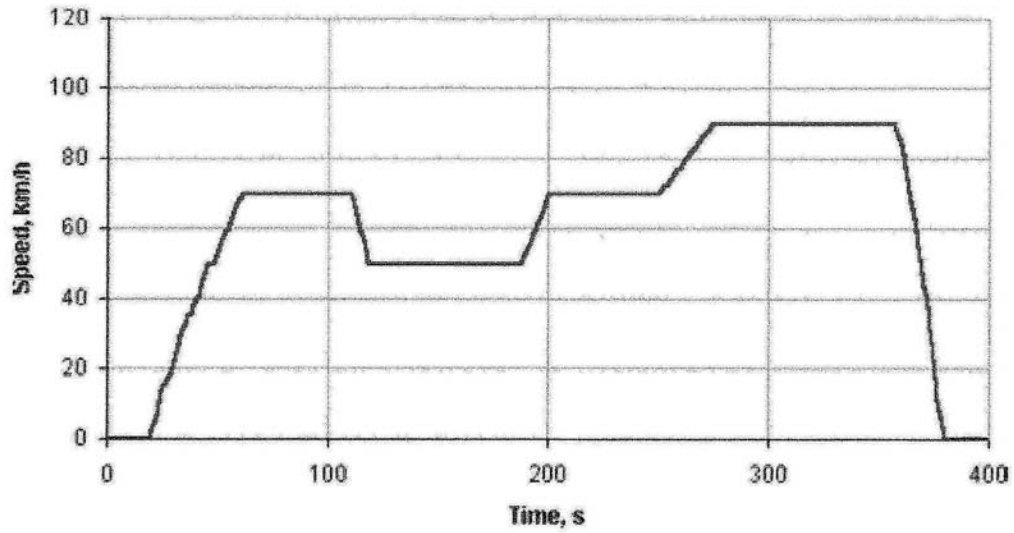
SaviCorp						
2008 Toyota Highlander						
VIN: JTEDS43A682067687						
Olson-EcoLogic Engine Testing Laboratory						

Baseline Test #1

2/10/15 90 KM/H						
TEST NO.	Grams/KM					
	THC	CO	NOx	CO2	L/100K	MPG
V5023774	0.091	0.943	0.030	252.12	10.81	21.77

With Dyno Valve 1250 125 5x5

2/10/15 90 KM/H						
TEST NO.	Grams/KM					
	THC	CO	NOx	CO2	L/100K	MPG
V5023775 Test #1	0.043	0.417	0.049	267.44	11.42	20.60
V5023777 Test #2	0.052	0.560	0.050	268.92	11.49	20.47



EUDC Cycle for Low Power Vehicles

Emissions are sampled during the cycle according the constant volume sampling (CVS) technique, analyzed, and expressed in g/km for each of the pollutants.



Appendix

EUDC Cycle for Low Power Vehicles and Subsequent Characteristics



EUDC Cycle for Low Power Vehicles and Subsequent Characteristics

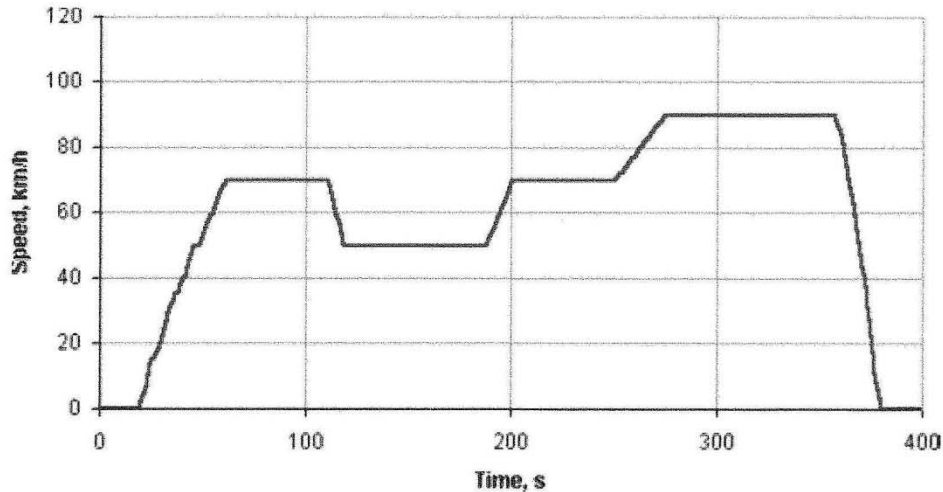


Figure 3. EUDC Cycle for Low Power Vehicles

Emissions are sampled during the cycle according to the constant volume sampling (CVS) technique, analyzed, and expressed in g/km for each of the pollutants.

The following table includes a summary of selected parameters for the ECE 15, EUDC and NEDC cycles.

Characteristics	Unit	ECE 15	EUDC	NEDC†
Distance	km	0.9941	6.9549	10.9314
Total time	s	195	400	1180
Idle (standing) time	s	57	39	267
Average speed (incl. stops)	km/h	18.35	62.59	33.35
Average driving speed (excl. stops)	km/h	25.93	69.36	43.10
Maximum speed	km/h	50	120	120
Average acceleration ¹	m/s ²	0.599	0.354	0.506
Maximum acceleration ¹	m/s ²	1.042	0.833	1.042

† Four repetitions of ECE 15 followed by one EUDC

¹ Calculated using central difference method

Type I, II and III Tests. The urban driving cycle—ECE 15, Figure 1—represents Type I test, as defined by the original ECE 15 emissions procedure. Type II test is a warmed-up idle tailpipe CO test conducted immediately after the fourth cycle of the Type I test. Type III test is a two-mode (idle and 50 km/h) chassis dynamometer procedure for crankcase emission determination.