Conventional Vehicle Data Summary Sheet

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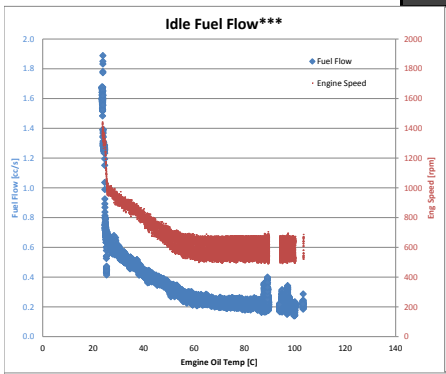
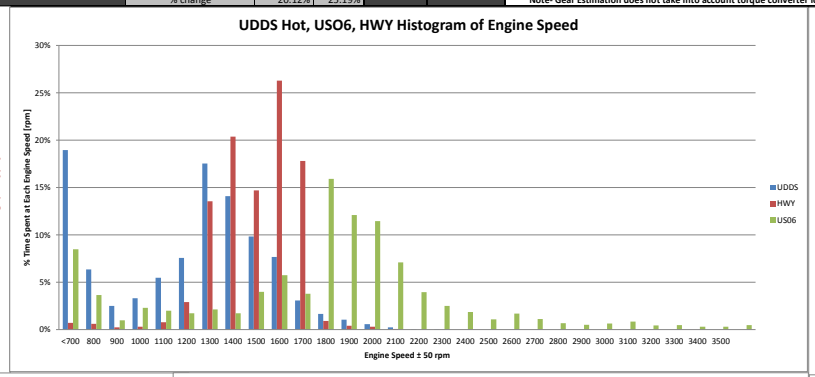
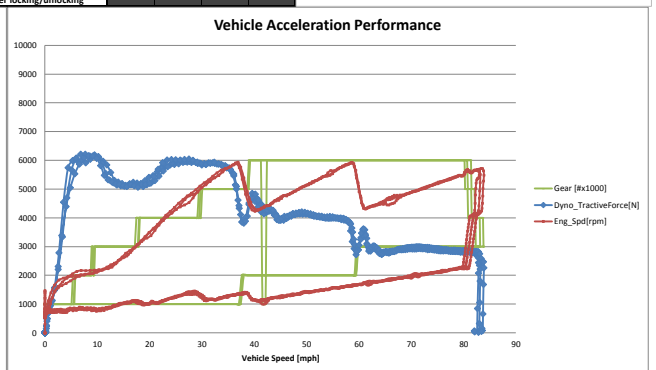
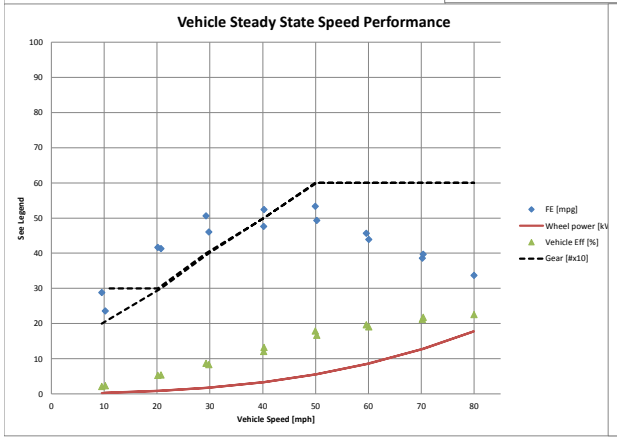
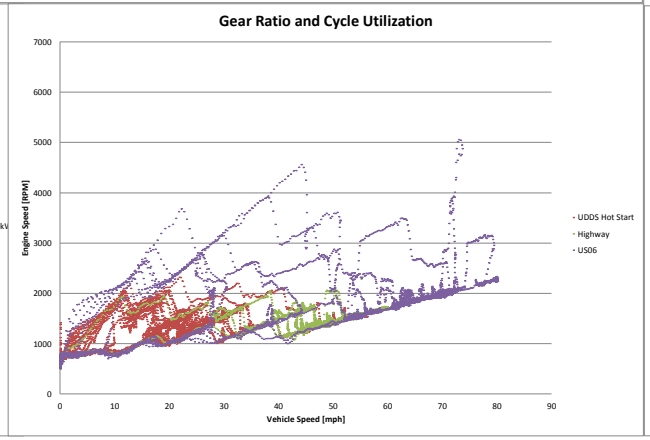
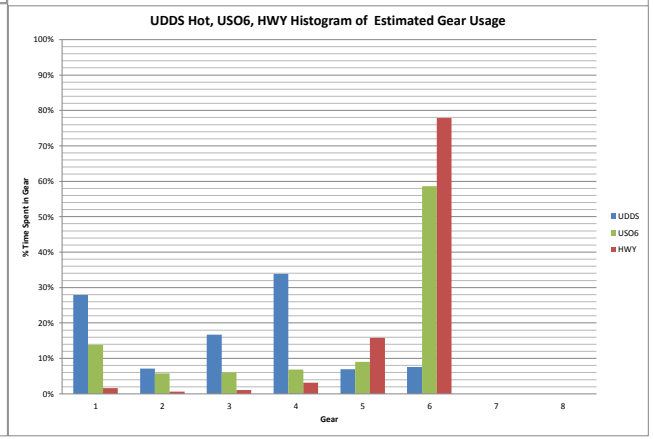
Vehicle Information		
Car		2013 Hyunai Sonata
Type		4dr Sedan
Engine		2.4L I4
Compression ratio		11.3:1
Horsepower		198hp @ 6300 rpm
Torque		184lb-ft @ 4250 rpm
Gear Ratio	1st	n/a
	2nd	n/a
	3rd	n/a
	4th	n/a
	5th	n/a
	6th	n/a
	7th	n/a
	8th	n/a
	Final Drive	n/a
Wet or Dry Clutch		
Label EPA Fuel Economy	HWY	35
	Urban	24
	Combined	28
0 to 60 time [s]		7.7
2 Whl Dyno GUI table	Test weight	3500
	a	29.45
	b	0.5673
	c	0.0101

Fuel Info				
Fuel Name:	Tier II EEE HF437	Density:	0.74	[g/ml]
CWF:	0.8618	Net HV:	18344	[BTU/lbm]

Test Cycle	Test I.D.	Fuel Usage Summary Table: Date	Distance [mi]	FC [l/km]	FE [mpg]	Vehicle Efficiency	Avg. Engine Spd [rpm] when moving	% of Time Spent in Estimated Gear: 1	2	3	4	5	6	7	8	Estimated Shifts / cycle	% Total Fuel Used: Idle	Accell	Cruise*	Deccel
Weighted UDDS		08/03/12	7.49	8.74	27.2															
UDDS Cold	71208004	08/03/12	7.49	9.33	25.5	15.8%	1331	28.1%	6.9%	16.5%	34.0%	6.9%	7.7%	-	-	164	10.1%	51.9%	26.7%	11.3%
UDDS Hot	71208005	08/03/12	7.49	8.34	28.5	17.6%	1326	27.9%	7.1%	16.7%	33.8%	7.0%	7.6%	-	-	148	7.5%	53.9%	26.7%	11.9%
UDDS Hot2	71208006	08/03/12	7.49	8.32	28.5	17.7%	1326	27.9%	7.1%	16.8%	33.6%	7.0%	7.6%	-	-	152	7.7%	52.4%	28.7%	11.2%
		Cold Start Penalty**		11.88%	10.62%															
Hwy	71208007	08/03/12	10.30	5.07	46.8	26.2%	1498	1.6%	0.6%	1.0%	3.2%	15.8%	77.8%	-	-	28	2.2%	28.0%	64.3%	5.6%
US06	71208008	08/03/12	8.04	8.37	28.4	24.8%	1878	13.8%	5.7%	6.0%	6.9%	9.1%	58.6%	-	-	92	1.6%	62.8%	27.7%	7.8%
US06 City Portion	71208008	08/03/12	1.78	13.66	17.4	21.8%	1751	29.3%	12.5%	12.7%	15.2%	14.1%	16.2%	-	-	64	2.6%	86.1%	4.5%	6.8%
US06 HWY Portion	71208008	08/03/12	6.26	6.87	34.6	26.5%	1947	3.9%	1.4%	1.7%	1.6%	5.8%	85.6%	-	-	28	1.1%	49.7%	40.9%	8.4%
NEDC	71208012	08/03/12	6.91	7.88	30.1	18.1%	1389	32.2%	9.0%	16.4%	21.3%	11.7%	9.3%	-	-	68	10.5%	43.1%	38.4%	8.1%
NEDC Urban	71208012	08/03/12	2.54	10.50	22.6	12.1%	1237	42.7%	12.9%	23.1%	21.3%	0.0%	0.0%	-	-	54	16.3%	44.2%	25.2%	14.3%
NEDC Extra Urban	71208012	08/03/12	4.37	6.36	37.4	23.8%	1618	11.8%	1.6%	3.2%	21.4%	34.6%	27.4%	-	-	14	4.9%	41.9%	51.0%	2.2%
LA 92	71208013	08/03/12	9.86	8.99	26.4	20.6%	1428	27.5%	8.3%	13.7%	20.0%	14.1%	16.4%	-	-	214	4.8%	64.8%	19.4%	10.9%
JC08	71208009	08/03/12	5.10	9.07	26.19	15.6%	1256	41.0%	9.7%	17.1%	17.1%	11.1%	4.0%	-	-	130	13.8%	51.3%	21.9%	12.9%
WLTP	71208020	08/06/12	14.44	7.77	30.57	21.1%	1434	18.8%	8.6%	18.8%	15.6%	14.5%	23.6%	-	-	270	4.2%	53.4%	32.6%	9.8%
WLTP Phase 1	71208020	08/06/12	1.93	11.24	21.1	13.1%	1168	36.2%	14.6%	31.1%	15.8%	2.4%	0.0%	-	-	120	11.8%	52.5%	18.4%	17.3%
WLTP Phase 2	71208020	08/06/12	2.95	8.21	28.9	19.5%	1389	15.1%	8.4%	17.2%	27.5%	26.4%	5.4%	-	-	70	3.9%	62.1%	23.7%	10.3%
WLTP Phase 3	71208020	08/06/12	4.41	6.80	34.9	22.1%	1431	9.9%	5.5%	15.4%	10.4%	18.4%	40.4%	-	-	66	2.6%	50.6%	39.6%	7.2%
WLTP Phase 4	71208020	08/06/12	5.15	7.05	33.7	26.0%	1856	4.7%	2.2%	3.6%	6.9%	15.0%	67.6%	-	-	14	1.2%	50.5%	41.4%	7.0%
UDDS Cycle Beating		08/06/12	7.48	7.95	29.9	16.9%	1286	26.7%	6.5%	19.5%	33.7%	6.0%	7.5%	-	-	138	6.0%	50.2%	32.5%	11.3%
		% improvement**		4.88%	4.65%															
1.2 UDDS ED	71208023	08/06/12	7.47	9.40	25.3	20.4%	1493	-	-	-	-	-	-	-	-	184	5.6%	68.4%	16.6%	9.4%
		% change**		11.29%	12.73%															
1.4 UDDS ED	71208024	08/06/12	7.48	11.49	20.7	21.3%	1662	-	-	-	-	-	-	-	-	236	3.7%	76.6%	11.8%	7.9%
		% change**		27.43%	37.81%															
1.2 Hwyx2 ED	71208022	08/06/12	20.62	6.35	37.40795	26.0%	1770	-	-	-	-	-	-	-	-	90	1.9%	43.0%	46.9%	8.1%
		% change		20.12%	25.19%			Note- Gear Estimation does not take into account torque converter locking/unlocking												

2013 Hyunai Sonata

Argonne NATIONAL LABORATORY
Advanced Powertrain Research Facility

Note:
*Cruise determined to be an acceleration ±0.2m/s²
**Compared to Hot Test#1
*** From Idle Test, Car in Park