Argonne NATIONAL LABORATORY

Advanced Powertrain Research Facility

Downloadable Dynamometer Database (D^3)- Test Summary Sheet

2013 Ford Focus Electric

Vehicle architecture	Battery Electric Vehicle
Document date	5/14/2015
Revision Number	1
Notes:	

Vehicle Setup Information

Test cell location	ANL APRF Bdg 371
Vehicle dynamometer Input	
Test weight [lb]	3948
Target A [lb]	36.4265
Target B [lb/mph]	0.51941
Target C [lb/mph^2]	0.015143
Test Fuel Information	
Fuel type	**Electricity**
Fuel density [g/ml]	-
Fuel Net HV [BTU/lbm]	-

Test ID [#]	Cycle	Cold start (CSt) Hot start [HSt]	Date	Test Cell Temp [C]	Test Cell RH [%]	Test Cell Baro [in/Hg]	Vehicle cooling fan speed: Speed Match [SM] or constant speed [CS]	Solar Lamps [W/m2]	Veicle Climate Control settings	Hood Position [Up] or [Closed]	Window Position [Closed] or [Down]	Cycle Distance [mi]	Cycle Fuel economy [mpg] (Emiss Bag)	Cycle Fuel Consumed [gal] (Emiss Bag)	Cycle HV battery Integrated net current [DC Ah]	Cycle HV battery Average Zero crossing Voltage [V]	Cycle HV battery Net Energy [DC Wh]	Cycle HV Batt Energy Consumption [Vzc*Ah / mi]
Test information				Test cell information			Test cell setup		Vehicle setup						Electric energy consumption			
61408019	UDDS #1, Ph 1+2	CS	08/11/14	-5	7	29	SM	0	72F	Closed	Cllosed	7.43	-	-	11.041	342.6	3782.09	508.70
61408019	Hwy #2, Ph 3	HS	08/11/14	-5	7	29	SM	0	72F	Closed	Cllosed	10.23	-	-	11.126	331.1	3683.37	360.01
61408020	UDDS #2, Ph 1+2	HS	08/11/14	-6	7	29	SM	0	72F	Closed	Cllosed	7.44	-	-	9.463	328.4	3106.87	417.62
61408020	US06 #1, Ph 3+4	HS	08/11/14	-5	6	29	SM	0	72F	Closed	Cllosed	7.99	-	-	10.529	313.1	3280.05	410.36
61408021	US06 #2, Ph 1+2	HS	08/11/14	-7	8	29	SM	0	72F	Closed	Cllosed	8.04	-	-	11.143	301.3	3337.62	415.14
61408022	UDDS #3, Ph1	HS	08/11/14	-7	8	29	SM	0	72F	Closed	Cllosed	3.01	-	-	3.409	293.8	1001.60	332.81
Full charge test summary											**Totals**	**44.15**			**56.7**		**18192**	
Re-charging information				-7	Temperature during charge [C]													
Level: 2																Charge integrated power [AC Wh]	**21227**	
61408013	UDDS #1, Ph 1+2	CS	08/08/14	23	52	29	SM	0	OFF	Closed	Down	7.45	-	-	4.523	348.6	1576.79	211.79
61408013	Hwy #1, Ph 3	HS	08/08/14	25	45	29	SM	0	OFF	Closed	Down	10.24	-	-	6.738	343.4	2313.55	225.83
61408014	UDDS #2, Ph 1+2	HS	08/08/14	22	59	29	SM	0	OFF	Closed	Down	7.45	-	-	4.479	340.2	1523.59	204.53
61408014	US06 #1, Ph 3+4	HS	08/08/14	23	46	29	SM	0	OFF	Closed	Down	8.00	-	-	7.397	332.4	2451.10	306.25
61408015	SSS @ 55 Middle Deplete Ph 1	HS	08/08/14	25	45	29	SM	0	OFF	Closed	Down	9.23	-	-	6.615	330.3	2185.13	236.71
61408015	US06 #2, Ph 3+4	HS	08/08/14	24	45	29	SM	0	OFF	Closed	Down	8.00	-	-	7.481	323.7	2414.27	301.65
61408016	UDDS #3, Ph 1+2	HS	08/08/14	22	58	29	SM	0	OFF	Closed	Down	7.45	-	-	4.665	322.8	1506.19	202.16
61408016	Hwy #2, Ph 3	HS	08/08/14	25	45	29	SM	0	OFF	Closed	Down	10.25	-	-	7.253	313.2	2271.58	221.71
61408017	UDDS #4, Ph 1+2	HS	08/08/14	22	57	29	SM	0	OFF	Closed	Down	7.45	-	-	4.876	306.5	1494.78	200.76
61408018	SSS @ 55 Deplete	HS	08/08/14	25	44	29	SM	0	OFF	Closed	Down	6.90	-	-	5.946	276.2	1642.05	238.15
Full charge test summary											**Totals**	**82.41**			**60.0**		**19379**	
Re-charging information				23	Temperature during charge [C]													
Level: 2																Charge integrated power [AC Wh]	**22537**	
61408008	SSS 0-80-0 0% grade	HS	08/06/14	25	45	29	SM	0	OFF	Closed	Down	6.22	-	-	4.610	338.4	1559.75	250.88
61408009	SSS 0-80-0 6% grade	HS	08/06/14	25	46	29	SM	0	OFF	Closed	Down	6.23	-	-	14.404	325.5	4688.06	752.94
61408011	Passing Maneuvers 0%, 3%, 6% grade	HS	08/06/14	25	44	29	SM	0	OFF	Closed	Down	10.01	-	-	16.200	311.5	5046.73	504.33
61408023	UDDS #1, Ph 1+2	CS	08/12/14	36	36	29	SM	850	72F	Closed	Cllosed	7.45	-	-	5.144	348.0	1790.73	240.28
61408023	Hwy #1, Ph 3	HS	08/12/14	38	30	29	SM	850	72F	Closed	Cllosed	10.25	-	-	6.823	342.4	2336.25	227.83
61408024	UDDS #2, Ph 1+2	HS	08/12/14	35	41	29	SM	850	72F	Closed	Cllosed	7.48	-	-	5.108	338.9	1730.80	231.53
61408024	US06 #1, Ph 3+4	HS	08/12/14	37	29	29	SM	850	72F	Closed	Cllosed	8.03	-	-	7.443	331.6	2461.73	306.58
61408025	US06x2, Ph 1+2	HS	08/12/14	36	32	29	SM	850	72F	Closed	Cllosed	8.01	-	-	7.538	322.5	2442.35	305.03
61408026	SC03 Prep, Ph 1	HS	08/12/14	35	41	29	SM	850	72F	Closed	Cllosed	3.57	-	-	2.506	327.8	821.48	230.35
61408026	SC03 Prep, Ph 2	HS	08/12/14	36	36	29	SM	850	72F	Closed	Cllosed	3.59	-	-	2.697	325.3	877.28	244.37
61408027	Hwy #2, Ph 1	HS	08/12/14	38	31	29	SM	850	72F	Closed	Cllosed	10.28	-	-	7.300	318.1	2322.38	225.83
61408028	UDDS #4, Ph 1+2	HS	08/12/14	36	41	29	SM	850	72F	Closed	Cllosed	7.49	-	-	5.503	309.8	1704.79	227.57
61408029	SSS @ 55 Deplete	HS	08/12/14	39	28	29	SM	850	72F	Closed	Cllosed	10.39	-	-	8.440	287.0	2422.45	233.09
Full charge test summary											**Totals**	**76.54**			**58.5**		**18910**	
Re-charging information				35C to 23C	Temperature during charge [C]													
Level: 2																Charge integrated power [AC Wh]	**24694**	

Summary notes

Phase numbers associated with each tests reference the portion of a tests which was the desired cycle. Testing at 35C was conducted using a modified SAE J1634 Multi Cycle Test Methodology, with an SC03 conducted in lieu of the 3rd UDDS cycle.

Electric energy consumption:

HV battery Integrated net current --> Integrated current as reported by power analyzer

HV battery Average Zero crossing Voltage --> Calculated Average Zero crossing Voltage over the phase or cycle

HV Net Energy --> Integrated power as reported by power analyzer

Note that HV Net Energy is not equal to the product of HV battery Integrated net current times Average Zero crossing Voltage.

* Target Coefficients developed during AVTE coast down testing

Advanced Powertrain Research Facility Data referencing:

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