

Electric Drive and Advanced Battery and Components Testbed (EDAB)

March 5 2012 through June 6 2013

Description / Specification

Vehicle

Configuration Series PHEV

Traction Motor UQM 145 kW / single-speed gearbox APU

UQM 145 kW / 5.3L gasoline engine

Battery Pack

EnerDel Manufacturer

Model Type I EV Pack (A306)

Chemistry Li-ion

Cathode Mixed Oxide (Modified NMC) Anode **Amorphous Hard Carbon**

Configuration 4 parallel strings of 96 cells

Rated Capacity (Ah) 70 Nominal Voltage (V) 345 285 Pack mass (kg)

Cooling Type Passive (sealed enclosure)

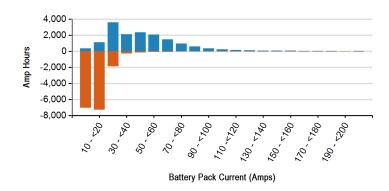
ESS Reference Performance Testing Results

| Initial Measured Capacity (BOL) (Ah) | 63.2 |
|--------------------------------------|------|
| Present Measured Capacity (Ah) | 51.7 |

ESS On-road Testing Results

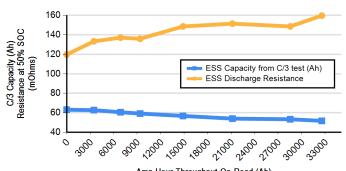
| Miles driven | 18,907.0 |
|------------------------------------|----------|
| City % of miles | 53% |
| Hwy % of miles | 47% |
| Amp Hours throughput lifetime | 32,766.5 |
| Avg. energy consumption (DC Wh/mi) | 239.5 |

Lifetime Ah throughput On-road



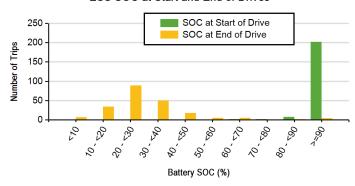


ESS Capacity and Resistance from RPT



Amp Hour Throughput On-Road (Ah)

ESS SOC at Start and End of Drives



Lifetime Ah throughput On-road

