2013 Chevrolet Volt

Battery Charge Profiles at Different Temperatures

Summary

The 2013 Chevrolet’s battery was charged with a level 2 EVSE charger from charge sustaining mode at 95°F, 72°F, and 20°F. For all temperatures, the charger consumes constant power until the last 30 minutes when power gradually tapers down. For this data set, the vehicle battery charge energy consumption shows a monotonic increase with temperature.

Select Battery Specifications

Manufacturer: LG Chem
Type: Lithium-Ion (LMO)
Nominal System Voltage: 355.2 V
Rated Pack Energy: 16.5 kWh
Cooling: Active - Liquid Cooling

Key Charging Experiment Results

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Peak Power (kW)</th>
<th>Energy Consumed (kWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charge at 95°F</td>
<td>3.11</td>
<td>13.08</td>
</tr>
<tr>
<td>Charge at 72°F</td>
<td>3.13</td>
<td>12.64</td>
</tr>
<tr>
<td>Charge at 20°F</td>
<td>3.10</td>
<td>12.50</td>
</tr>
</tbody>
</table>

Fig. 1 Chevrolet Volt charger power consumption during charge

Notes:

1. Vehicle specifications were supplied by the manufacturer, measured, or derived from a literature review. For detailed specifications, see Baseline Testing Results available at avt.inl.gov
2. Ambient temperatures were adjusted at the end of charging: 95°F to 72°F, 72°F to 20°F, and 20°F to 72°F

As a production vehicle, this vehicle is assumed to meet all Federal Motor Vehicle Safety Standards (FMVSS) for Battery Electric Vehicles.

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