

2013 Nissan Leaf

Battery Charge Profiles at Different Temperatures



Select Battery Specifications¹

Manufacturer:	AESC
Type:	Lithium-Ion (LMO)
Nominal System Voltage:	364.8 V
Rated Pack Energy:	24 kWh
Cooling:	Passive-Natural Convection w/Sealed Pack Enclosure

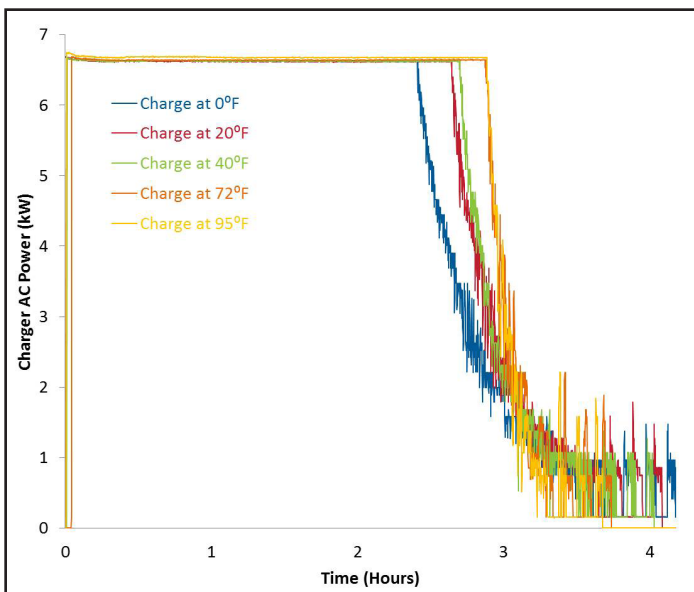


Fig. 1 Nissan Leaf charger power consumption during charge

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: 20°F to -20°F, 40°F to 20°F, and 72°F to 95°F
3. The experiments were conducted at Argonne National Laboratory (ANL) for the Advanced Vehicle Testing Activity (AVTA)

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Summary

The 2013 Nissan Leaf was charged with an AC level 2 EVSE from depletion at 95°F, 72°F, 40°F, 20°F, and 0°F.² For all temperatures, the charger consumes constant power until the last hour and half when power gradually tapers down (see Figure 1). The vehicle battery charge energy consumption shows a monotonic increase with temperature. All tests were performed in a chassis dynamometer chamber with temperature controls.³

Key Charging Experiment Results

	Peak Power (kW)	Energy Consumed (kWh)
Charge at 95°F	6.74	22.48
Charge at 72°F	6.69	22.25
Charge at 40°F	6.67	21.97
Charge at 20°F	6.68	21.92
Charge at 0°F	6.69	21.96