

OSD Foreign Comparative Test – Product Template

Date: 03/31/2020

Product: Active Battery Management System (ABMS)

Company Name: GBatteries (GBatteries Energy Canada Inc.)

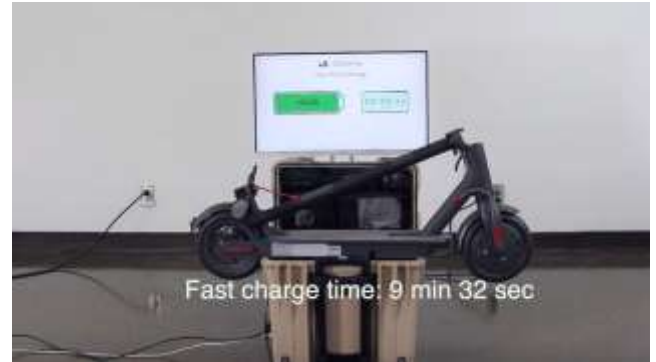
Country: Canada

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Short Description:

Operating since 2014 with customers in several countries, GBatteries developed ABMS technology, an advanced charging system utilizing advanced self-learning algorithms to enable ultra-fast charging of off-the-shelf Li-ion batteries without compromising battery cycle life. We have demonstrated charging battery packs in 5 min to 50%, 10 min to 100% vs the 1.5-5hrs conventionally.

Technology Readiness Level (fielded, lab tested, operational test): Lab tested. Developmental

Drone charging demo: <https://www.youtube.com/watch?v=WwJhZsfkFvM>
Power tool charging demo: <https://www.youtube.com/watch?v=sCJLhNako18>
E-scooter charging demo: <https://www.youtube.com/watch?v=E847GkKxfow>

Prototype demonstrated on power tool battery pack, drone, and e-scooter

Countries using this product: Customers in France, Germany, USA

Application: (the so what?)

If a product has a rechargeable Li-ion battery, our technology can drastically improve the charge time without causing degradation to the battery. Our charging protocol can be applied to products ranging from electric vehicles (EVs) to radios to drones.

This technology can be integrated within existing battery systems, and can enable faster usability of batteries, eliminate long wait times at recharging stations, and provide more reliable battery capacity performance so that extra "just-in-case" batteries (and therefore weight) will not be needed in the field.

Science (how it works):

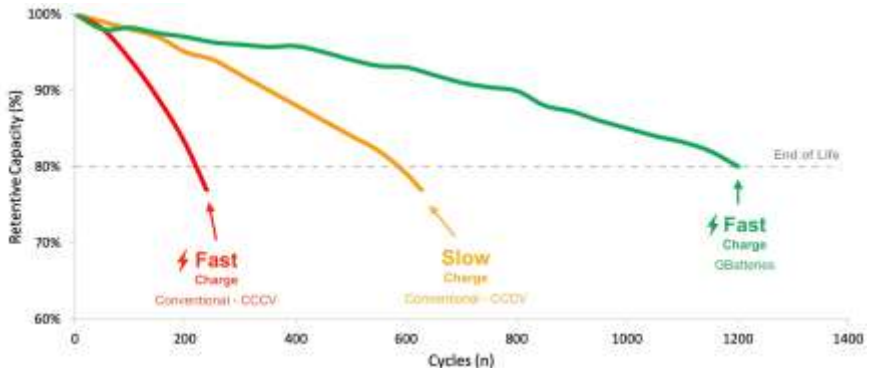
Currently, the issue is the faster a battery is charged the faster it degrades. Unlike our competitors, who are looking at different battery chemistry or new materials, we are improving battery performance through an innovative charging system.

ABMS is a proprietary, fully adaptive, self-learning algorithm that generates complex charging pulse profiles based on real-time monitoring and analysis of a battery's internal state. Unique charge profiles are generated based on battery response signatures in real-time, which result in a drastic reduction of irreversible chemical reactions. GBatteries' hardware consists of off-the-shelf components, but utilizes proprietary novel architecture that generates precisely engineered pulses at high frequency.

Data (key tested performance metrics):

Different batteries tested exhibit different performance (based on energy density, form factor, chemistry type, etc).

Generally, have demonstrated 5 min to 50%, 10-12min to 100% for power cells, 10-20min to 50%, 30-45min to 100% for energy cells, without compromising cell cycle life.



U.S. Partners:

GBatteries is currently working with several US based automotive OEMs on NDA-covered projects.

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Previous work with DoD: GBatteries does not currently have a relationship with DoD.