

Power Delivery of Commercially Developed
High Power Batteries for Pulse Power Use

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ABSTRACT:

One of the limiting factors in the fielding of electro-magnetic weaponry on today's battlefield is the enormous storage space required to provide the energy and power for electro-magnetic launch. Given the incredibly short duration of the electric charge during a shot, on the order of two to three microseconds, an incredible amount of power is required to propel the projectile with the desired force. A conservative correlation puts the power required to shoot a round in a pulsed-power setting at one thousand times greater than the desired energy amount. Batteries have traditionally been capable of high energy density, but lacked the ability to deliver power in sufficient quantities for effective use as a prime power source in an electro-magnetic weapon. Given recent technological leaps in commercial battery technology, batteries have resurfaced as a potential power source. This project will discuss testing methods to determine power delivery in a pulsed power setting, as well as provide results and analysis as to the viability of high-power batteries for use in an electromagnetic configuration.

KEYWORDS: pulse-power, electro-magnetic launch, hypervelocity launch, high-power batteries

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