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Quallion LLC Announces Fastest Lithium-ion Battery on Earth for the Boeing X-51A WaveRider

Sylmar, CA. (June 17, 2010) – On May 26, 2010, on its first flight attempt, the Boeing X-51A WaveRider successfully completed the longest supersonic combustion ramjet-powered flight in history travelling at a top speed of Mach 5 for nearly three and a half minutes.

For this demonstration, Quallion developed an advanced lithium-ion system to power various components within the unmanned vehicle. The program chose to use a rechargeable lithium-ion chemistry over the traditional silver-zinc and thermal battery solutions to reduce ground maintenance prior to launch, which would allow for testing of the system without the need to replace the battery. Quallion developed a high energy density and high discharge rate pouch cell, which served as the basis for three separate battery packs enclosed in one envelope on the vehicle. This cell design had to be robust enough to handle three different performance requirements while maintaining the program's weight goals.

The lithium-ion cell was designed for high discharge power capabilities with high safety characteristics. "Being able to design the proper lithium-ion cell to meet the unique envelope, weight and performance requirements of the X-51A program was key to meeting the mission requirements and providing the X-51A power", says CEO & CTO Dr. Hisashi Tsukamoto.

In addition, due to the unique environmental conditions of traveling in a vehicle capable of greater than Mach 5 speed, Quallion utilized its innovative battery packaging designs to reduce the overall loads and stress on the lithium-ion cells. "Quallion leveraged our experience of designing unique batteries for military and aerospace applications in order to enable the successful qualification of this battery design and performance in flight", says the VP of Military/Aerospace Power, Vincent Visco.

Quallion X-51A Lithium-Ion Battery.

The X-51 Waverider ScramJet Demonstrator Program sponsored by the US Air Force Research Laboratory and built by a consortium of The Boeing Company and Pratt & Whitney. This hypersonic test vehicle is designed to achieve Mach 6+ speeds at an altitude of 100,000 feet.

X-51A during B-52 Fit Check.

About Quallion LLC – Quallion was founded in 1998 by biotechnology and aerospace entrepreneur Alfred E. Mann and lithium ion battery specialist Dr. Hisashi Tsukamoto. Quallion began as a medical device battery company and soon developed a range of novel enabling technologies, including the world's smallest implantable secondary battery, as well as its proprietary Zero-Volt™ and SaFE-LYTE™ technologies. Quallion develops and manufactures state-of-the-art primary lithium and secondary lithium ion batteries for the military, aerospace, medical and automotive industries. Leveraging its core engineering capabilities, Quallion has expanded into the aerospace, military and automotive industries by focusing on niche applications where advanced battery technology, safety, reliability and custom engineering are most valued. Quallion's services include designing, fabricating and manufacturing materials, cells and battery packs with a strong R&D focus on developing new battery chemistries.