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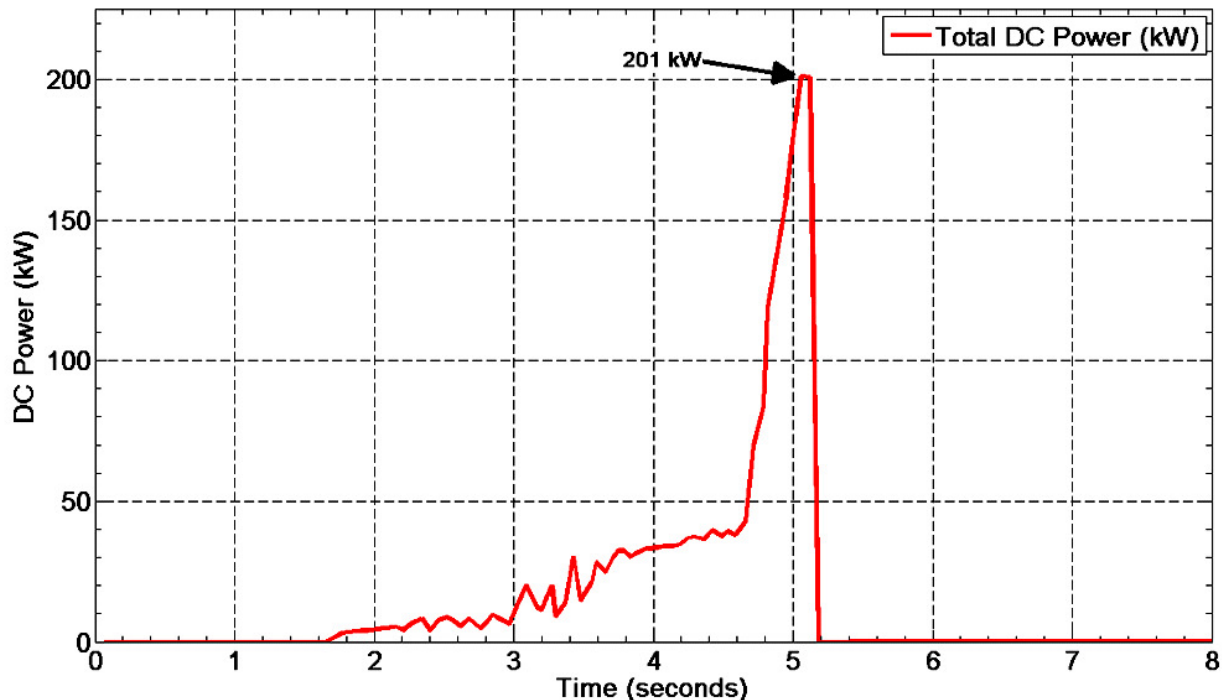
**VASIMR® VX-200 reaches 200 kW power milestone.**

[Houston, TX. For immediate release] – Ad Astra Rocket Company’s VASIMR® VX-200 rocket prototype reached its highly-coveted 200 kW maximum power milestone at 11:59 am (CST) in tests conducted at the company’s Houston laboratory. The DC power trace actually exceeded the design requirement by 1 kW and exhibited the clear signature of a well-established plateau at peak power (see graph). The achievement comes after an intense experimental campaign that began last April when the engine was fitted with a powerful low temperature superconducting magnet, a critical component that enables VASIMR® to process large amounts of plasma power. The electrical power processing is accomplished using high

efficiency, 95%, solid state RF generators built by Nautel Ltd of Halifax, Canada. Demonstration of a 200 kW capability was required to validate, with full scale performance data, the design of the VF-200-1 already underway. The VX-200 turns out to exceed the expected power density of VF-200-1 by about 25%, so this is a robust demonstration of the technology. The VF-200-1 is the first engine that the company plans to fly in space, and it is presently working with NASA to effectuate in-space testing in late 2013 on the International Space Station (ISS).

The total power processed by the engine is distributed between its two electromagnetic stages. The first, tested last July at its full 32 kW power rating, generates the plasma from Argon feedstock gas, while the second energizes it to the desired output conditions. At maximum

VASIMR VX-200, September 30 2009, Shot 1159

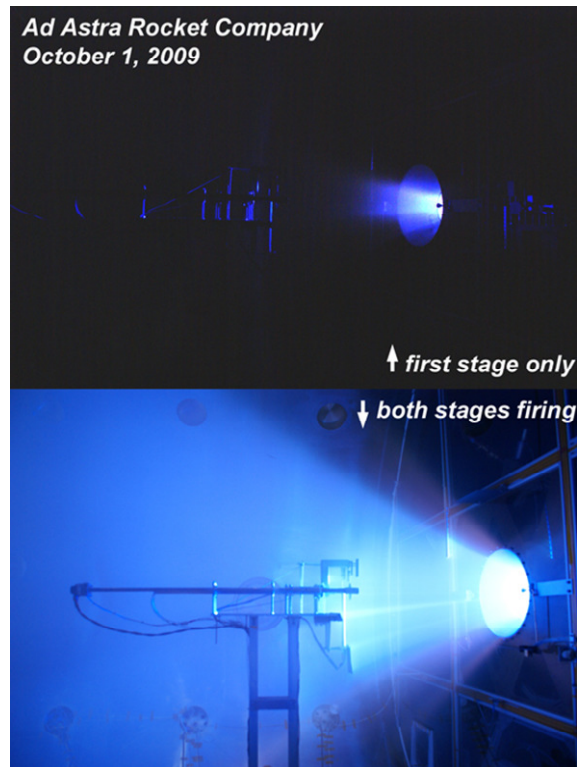


power, the second stage contributes an additional 168 kW to complete the 200 kW power rating. “The 200 kW test is, in effect, a validation of the VASIMR® second stage design, a hitherto untested element of the engine at these tremendous power levels,” said Dr. Jared P. Squire, Ad Astra’s Director of Research and leader of the experimental team conducting the tests. “Preliminary data indicate a better than expected power coupling, leading to slightly less thermal stress than originally predicted. These findings will continue to be verified, but the indications point to operation well within the chosen design specifications” he said.

Short for Variable Specific Impulse Magnetoplasma Rocket, VASIMR® is a new high-power plasma-based space propulsion technology, initially studied by NASA and now being developed privately by Ad Astra. A VASIMR® engine could transport payloads in space far more efficiently and economically than today’s chemical rockets. The company envisions an early commercial deployment of the technology, beginning in 2014, to greatly reduce the operational costs of maintaining an evolving space infrastructure, including space stations, satellites, lunar outposts and fuel depots in the Earth-Moon environment. Ultimately, VASIMR® engines could also greatly shorten robotic and human transit times for missions to Mars and beyond.

“In terms of the end goal of building an operational engine, the achievement of this milestone implies a significant reduction in the total risk for the flight project” said, Dr. Tim Glover, Ad Astra’s Director of Development. The research team will now focus on fine-tuning and further exploring and characterizing the operational envelope of the engine, which will now provide the data set required to design the flight unit. “It should also be noted that VX-200 is a single 200 kW thruster core while the VF-200-1 that we are designing is a twin engine consisting of two cores that will be operated at 100 kW each. By operating a single core at 200 kW, we have demonstrated that the design has a large safety margin, particularly for the second stage in which most of the power is processed.”

“This latest achievement is a fitting tribute to the outstanding Ad Astra team. It has worked cohesively, tirelessly and efficiently at both the Houston and Costa Rica facilities to accomplish this important milestone. I am proud and honored to have the opportunity to work alongside this superb group of individuals who, with focus and determination, turn dreams into reality” said Ad Astra’s CEO Franklin Chang Diaz, as he received the news of the achievement while speaking at the 7th Space Investment Summit in Boston, Massachusetts.



## THE TECHNOLOGY

The VASIMR® engine works with plasma, a very hot gas, at temperatures close to the interior of the Sun. Plasmas are electrically charged fluids that can be heated to extreme temperatures by radio waves and controlled and guided by strong magnetic fields. The magnetic field also insulates any nearby structure, so temperatures well beyond the melting point of materials can be achieved and the resulting plasma can be harnessed to produce propulsion. In rocket propulsion, the higher the temperature of the exhaust gases, the higher their velocity and

hence the higher their fuel efficiency. Plasma rockets feature exhaust velocities far above those achievable by their chemical cousins, so their fuel consumption is extremely low and their fuel-related costs substantially reduced.

#### **ABOUT AD ASTRA**

Ad Astra Rocket Company is a privately-owned corporation established January 14, 2005 to commercialize the technology of the VASIMR<sup>®</sup> engine, a plasma propulsion system originally studied by NASA with potential to support an emerging in-space transportation market. The company has its main laboratory and corporate headquarters at 141 W. Bay Area Boulevard in Webster, Texas, USA. Ad Astra also owns and operates Ad Astra Rocket Company, Costa Rica, a supporting research and development subsidiary in Guanacaste, Costa Rica.