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PRESS RELEASE 070921, JULY 9, 2021: AD ASTRA ROCKET COMPANY SHATTERS POWER AND ENDURANCE RECORD IN RECENT TESTS OF THE VASIMR® VX-200SS PLASMA ROCKET.

[Webster, Texas – for immediate release] Ad Astra Rocket Company has shattered another major record for long-duration/high-power firing of its VASIMR® VX-200SS plasma engine, and in doing so, further advancing the technology of powerful and fuel-efficient electric rockets. Electric rockets operating above 50 kW/thruster are considered “high-power.”

On Wednesday, June 30, building on a succession of earlier tests this year, of increasing duration and power, the company completed a record-breaking test of the engine, operating at a power level of 82.5 kW for 28 hours, far longer than any other high-power firing to date. The tests are ongoing at the company’s Texas research facility near Houston.

The VASIMR® engine is unique in that it retains the high power of a chemical rocket but with ten times the fuel efficiency. As such, it is an excellent candidate for a host of applications, ranging from high-payload solar-electric robotic commercial cargo and resupply missions in cis-lunar space, to fast nuclear-electric human missions to Mars and beyond.

“We are extremely proud of the Ad Astra team. Their technical excellence, tenacity and dedication are reflected in this accomplishment. No other electric plasma rocket, at these power levels and technology readiness, has reached the VASIMR® engine’s combination of power and endurance achieved to date,” said Franklin R. Chang Díaz, Ad Astra’s chairman and CEO and a decorated former NASA astronaut. “We could have easily surpassed the 28-hour record but chose to stop our test to give the team a much-needed rest and a chance to celebrate the July 4th holiday,” he added.

Ad Astra has been steadily approaching the 100-kW/100-hours milestone set by NASA without detracting from the company’s main objective: the

demonstration of thermal steady-state control of the engine at high power. This condition calls for all the temperatures of the engine’s critical components to be successfully controlled by the engine’s thermal management system.

“With a mixture of innovation and determination, our small team has developed unique engineering and manufacturing capabilities for the steady-state VASIMR® engine that have made the recent success possible,” said Dr. Matthew Giambusso, Ad Astra Senior Research Scientist, and leader of experiment operations. “We have more work to do to reach the design power of 100 kW, but these last few weeks have demonstrated significant progress,” he added.

Major advances in the design of this system have been achieved in experimental campaigns lasting days to weeks, each followed by a period of inspection, disassembly, and improvement. This rapid prototyping is the basis for Ad Astra’s approach to mature the VASIMR® technology quickly and provide a competitive high-power electric propulsion option for both public and private customers.

The thermal management of the VASIMR® engine is uniquely challenging, as temperatures from millions of degrees in the rocket’s plasma core to near absolute zero in the superconducting magnet, located a few tens of centimeters away, must be carefully controlled. This, of course, in the vacuum environment where the engine must operate.

About the technology: Short for Variable Specific Impulse Magnetoplasma Rocket, VASIMR® works with plasma, an electrically charged gas, heated to extreme temperatures by radio frequency (RF) waves, and controlled and guided by strong magnetic fields, which also provide insulation. Plasma rockets, such as VASIMR®, have an extremely low fuel consumption and much higher power and/or performance as compared to other electric or chemical rockets. VASIMR® offers economic and operational advantages in satellite deployment, re-boost, refurbishment, and end-of-life disposal.

With the proper nuclear-electric power source, VASIMR[®] could enable much faster and safer human and robotic transportation in deep-space where solar power is insufficient.

About Ad Astra: A US Delaware corporation established in 2005, Ad Astra Rocket Company is the developer of the VASIMR[®] engine, an advanced plasma space propulsion system aimed at the emerging in-space transportation market. Ad Astra also owns and operates supporting R&D subsidiaries in Costa Rica focused on earthbound high technology applications in renewable energy, green hydrogen, advanced manufacturing and applied physics. Ad Astra has its main laboratory and corporate headquarters at 141 W. Bay Area Blvd in Webster, Texas, USA, near NASA's Johnson Space Center. Its Costa Rica subsidiaries are located 10 km west of Liberia, the capital of Guanacaste Province in the country's pacific northwest.