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Ad Astra's VX-CR-SS-1.5 Helicon Plasma Source Reaches Steady State Milestone in Costa Rica.

Liberia, Guanacaste, Costa Rica. The VX-CR-SS-1.5, a new plasma generator, conceived as a test bed for life cycle testing of the VASIMR[™] plasma rocket engine components, has achieved the steady state operation milestone in tests conducted at the company's Costa Rica laboratory. Located at the EARTH University La Flor Campus, about 10 km west of the city of Liberia, the new test facility went into operation a week ago, replacing an earlier version capable of only two minutes of operation. The experiment aims to reproduce the conditions of the first stage of a plasma rocket, based on the VASIMR™ (Variable Specific Impulse Magnetoplasma Rocket) concept. The VASIMR[™] plasma (a very hot gas) reaches temperatures similar to those on the surface of the sun.



New VX-CR-SS-1.5 test bed operating at the Costa Rica Facility

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With this milestone, the Costa Rica laboratory is well positioned to fulfill its primary mission: the life-cycle testing of critical VASIMR[™] components.

MAIN ACHIEVEMENT

In the test conducted yesterday and confirmed today, the VX-CR-SS-1.5 device operated stably for more than 3 hours, during which the system temperatures remained below the worst case predicted values.



In order to achieve this goal, new cooling, automation and magnet systems were designed and implemented for the experiment, heavily supported by computer simulations and design models.

"We are very proud of the Ad Astra Costa Rica team. Their hard work and dedication has paid off today" said Ronald Chang Díaz, Director of Ad Astra Costa Rica Operations. "This achievement shows the capability of Costa Rican investigators to contribute fully to the goals of the company" said Ing. Jorge Oguilve, director of engineering at the Guanacaste facility. "The Costa Rica facility is essential to achieving the ultimate company milestone, the successful flight of the VASIMR[™] and today we have taken a major step forward in achieving this goal" said Franklin R. Chang Díaz, Ad Astra's Chairman and CEO.

THE COMPANY

Ad Astra Rocket Company is a privatelyowned Delaware Corporation, established January 14, 2005 to commercialize the technology of the VASIMR[™], a plasma propulsion system, originally developed by NASA, with potential to support an emerging in-space transportation market. The company has its main laboratory and corporate headquarters at the Johnson Space Center in Houston Texas, USA. Ad Astra also owns and operates Ad Astra Rocket Company, Costa Rica, a supporting research and development subsidiary in Guanacaste, Costa Rica.



Ad Astra, Costa Rica Team: (front L to R) Juan Del Valle, Antonio Hasbun, Carolina Murillo, Marcela Cuendis, Ana Sofía Ruiz, Juan Valverde, (back L to R) Jorge Oguilve, Jorge Andrés Díaz, Sergio Cortés, Rónald Chang, Diego Fonseca, Daniel Castillo, (not in Picture) Carlos Martínez.

COMPANY HISTORY

Ad Astra was founded by former NASA astronaut and rocket scientist Franklin R. Chang Díaz. Ad Astra has, through a privatization agreement with NASA, an exclusive license to the original VASIMR[™] patents. However, in the last year, Ad Astra has added major improvements to these

patents in the form of new company-owned intellectual property.

THE TECHNOLOGY

Plasmas are electrically charged fluids that can be heated to these extreme temperatures by radio waves and controlled and guided by strong magnetic fields. The magnetic field also insulates the hot gas from any nearby structure: hence temperatures well beyond the melting point of materials can be achieved. 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.



VX-CR-SS-1.5 exhaust area Photos by Carmen Valverde Q.