



Millennium Space Systems and Tethers Unlimited to test space tether solution

Two small satellites set to race in space; scientifically compare deorbit capability

EL SEGUNDO, Calif., July 16, 2020 — Two Millennium Space Systems-built DRAGRACER small satellites are being prepared for a first-of-its kind, controlled flight experiment later this year to mature future deorbit tether systems for low Earth orbiting satellites.

The DRAGRACER mission uses the scientific method to compare deorbit performance with two identical satellites: one in a naturally decaying orbit and one deploying a tether to expedite de-orbit. By flying this DRAGRACER experiment, Millennium plans to empirically compare the satellite hosting the 70-meter-long Terminator Tape provided by Tethers Unlimited to the control satellite, while calibrating predictive models with radar tracking data.

“The LEO satellite community will be able to quantify the value of space tethers to help mitigate the ever-growing orbit debris problem – following the guidance from the Inter-Agency Space Debris Coordination (IADC) committee for satellites to re-enter the earth’s atmosphere within 25 years of being decommissioned,” said Stan Dubyn, founder and CEO, Millennium Space Systems. “This scientific method experiment will demonstrate Millennium’s ability to field and fly a low-cost and straightforward orbital debris mitigation solution that doesn’t require added mass, volume, cost and complexity of propulsion system to deorbit a satellite in low Earth orbit. This could also be used to augment LEO missions requiring higher accuracy re-entry impact points, whereby the tether would allow a course de-orbit to a VLEO point where a smaller and lighter propulsion system would then engage providing the higher accuracy end-game re-entry,” Dubyn said.

The satellites are scheduled to ship in September to TriSept Corp, the mission launch service provider, for integration onto a Rocket Lab Electron launch vehicle. Once launched, the DRAGRACER mission begins when the two satellites, named ALCHEMY and AUGURY, eject from the rocket. After deployment, the DRAGRACER payload separates into two 6U Millennium RAPTOR satellites with identical stowed mass properties and drag coefficients. ALCHEMY will house the 70 meter tether while AUGURY will provide a baseline deorbit trajectory.

Funded entirely with internal research and development funding and similar to a concept car in the auto industry, the RAPTOR satellite line is Millennium’s internal concept platform for hosting new and promising next-generation technologies. These missions launch in less than 12 months from inception and quantify and characterize technical performance and behavior in the space environment.

“The space community understands tether systems can expedite reentry, but this is our first opportunity to truly quantify performance directly and more effectively calibrate models developed over the last 50 years,” said Dr. Robert Hoyt, founder and CEO, Tethers Unlimited. “Predictions suggest the tethered spacecraft will deorbit in approximately 45 days, while the untethered spacecraft remains in orbit for approximately 7 to 9 years.”

About Millennium Space Systems, A Boeing Company

Millennium Space Systems is a Boeing [NYSE: BA] subsidiary, headquartered in El Segundo. Founded in November 2001, Millennium provides credible alternatives for relevant and affordable solutions to today’s space industry challenges. The company designs flight systems and develops AS 9100-certified mission and system solutions for the Intelligence Community, Department of Defense, NASA and civil space customers. With Millennium’s proven ALTAIR™ and AQUILA™ products, Boeing is further positioned to offer customers the full range of tailored space capabilities and missions.

More information about Millennium Space Systems: www.millennium-space.com.

About Tethers Unlimited, Inc.

Tethers Unlimited, Inc. develops transformative technologies for Space and Defense missions. Its technology portfolio includes programmable radios for small satellites, advanced space propulsion modules, and systems for in-space manufacturing of spacecraft components.

To learn more about TUI and its products, please visit www.tethers.com.



About TriSept Corporation

TriSept is the leading provider of launch integration and program management services for commercial and government missions, with more than 200 satellites launched on 20 different launch vehicles from 13 launch sites across the globe. Founded 25 years ago and headquartered in Chantilly, Virginia, TriSept helped conceptualize and shape the very rideshare and small satellite missions it supports today with the most experienced launch integration team in the industry.

For more information about TriSept and how it is enabling a new age of breakthrough missions in space, visit www.trisept.com.

About Rocket Lab

Rocket Lab is a space systems company and the world's leading dedicated small satellite launch provider. Founded in 2006 and headquartered in Long Beach, California, Rocket Lab provides end-to-end mission services, including turnkey satellites and spacecraft components, through to launch and on-orbit operations. Since the company's first launch in 2017, Rocket Lab has delivered 53 satellites to orbit on the Electron launch vehicle, enabling operations in space debris mitigation, Earth observation, ship and airplane tracking, and radio communications.

Learn more at www.rocketlabusa.com.

Media Contacts

Deborah VanNierop, Boeing Communications
E-mail: deborah.a.vannierop@boeing.com • Phone: 210-454-2656

Robert Hoyt, Tethers Unlimited, a subsidiary of AMERGINT
Phone: 425-486-1000

Paul Sims, TriSept Corporation
E-mail: paul@simscomm.com • Phone: 678-576-6126

Morgan Bailey, Rocket Lab
E-mail: media@rocketlabusa.com • Phone: (+64) 27-538-9039