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Committee on Science, Space and Technology

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Chairman Palazzo, Ranking Member Costello and members of the subcommittee:

It is an honor to appear before you today to testify on behalf of our friends and partners at NASA.

My name is Brian Russell, and I am CEO and founder of Zephyr Technology. I came to the U.S. as an entrepreneur. Zephyr Technology was born nine years ago. Today we are an American company, headquartered in nearby Annapolis, Maryland. We have investors such as Motorola and 3M and investors that understand government business. We employ 35 people. Zephyr is a global leader in the art and science of remote Physiological Status Monitoring, or PSM. That's how we became partners with NASA.

The story of that partnership illustrates the profound benefits of NASA funding. That funding spurs and accelerates research and technological innovation that not only furthers our space program, but saves lives, improves health, bolsters military and emergency readiness, gives birth to a wide range of beneficial consumer products and, in doing all of that, allows small companies like mine to be competitive, to maintain and create jobs in this country and to contribute to the economy. It is hardly an overstatement to say that nothing but good – a great deal of good – comes from funding NASA programs.

Zephyr first became involved with NASA in 2008, as part of William Toscano's and Patricia Cowlings's work at the Ames Research Center, Physiological Laboratory. They study areas including: motion sickness due to zero-gravity and fatigue in airline pilots and first responders. Under a Space Act Agreement, NASA partnered with Zephyr to remotely measure and interpret physiology. They used our comfortable, lightweight BioHarness™ to collect live physiological data. They also used our products for the Department of Homeland Security's Physiological Health Assessment System for Emergency Responders, or PHASER, transmitting live data over Motorola radios. I am proud to be an advisory board member for the PHASER program, which is working to reduce deaths of first responders.

Through these studies, Zephyr not only served the interests of NASA, DHS and DOD – they, in turn, served our needs. We received critical feedback based on decades of experience on design decisions to incorporate into our new products. Those



products are now making major contributions in several important areas – sports and fitness, Special Forces & First Responder training-and-operations and, perhaps most importantly, mobile health.

Through TSWG we have partnered with U.S. Special Forces in the Army and Navy to create a system not only to train, but to monitor a person's safety and health during field missions. Field commanders and medics can make fully informed, time-critical decisions based on whether someone is stationary, moving, dehydrated, is suffering heat stress or is injured. So we are improving their mission readiness, safety in training and extending their abilities in dynamic asymmetric warfare.

Zephyr's PSM solutions are currently being used in major league baseball, the NBA, European soccer, collegiate sports, Formula 1, professional tennis and more. A coach can measure and train each athlete to peak performance while preserving and enhancing the athlete's health.

A terrific dual use of this technology is for our products to help medical professionals, hospitals, nursing homes, families and even individuals. With Zephyr's web and smart phone system called ZephyrLIFE, a nurse can monitor, in real time, the condition of every patient in a ward, seeing everything from EKG to detecting a fall. Doctors can monitor their patients remotely – even if the patient is visiting family in Hawaii while the doctor is in his office in Atlanta. And a personal passion of mine is wellness, where this technology has taken big data and simplified it into a single Health Number from 0 to 10. This type of application will save the country by keeping people healthier and then reducing costs if they become sick.

This technology is selling NOW. The availability in large part is due to the researchers at NASA . Working with NASA gave us the information and feedback we needed to move from the realm of science fiction to the mainstream.

And Zephyr is giving back. NASA was deeply involved in the rescue of the 33 Chilean miners who were trapped 2,000 feet below ground last year. Because of our experience with NASA, Zephyr was called on for help. We provided BioHarnesses, monitoring software and in-field support personnel. Doctors were able to monitor the miners' wellness for the weeks they were trapped, keeping them healthy through training regimes and monitoring. During the extraction in the rescue capsule, doctors were able to monitor the miners' vital signs – to provide immediate medical attention on the surface. This is the model for new healthcare where data provides the ability to keep people well and respond quickly when needed.

And now, Zephyr is sharing all of the data collected during those dramatic weeks with NASA. It is the only event in recorded human history that mimics the conditions of long endurance space travel, where the nearest doctor may be a long way away.



This brings me to my concluding point. The scientists and legal department at NASA understood us, kept the process simple and brought us in as partners. As a result, Zephyr has improved and advanced its products which are truly dual use. Helping doctors, patients, athletes, soldiers, firemen and all of us and our families who want to stay fit and healthy – including NASA, and its astronauts. This success has let us grow and employ more people. Some of those advancements from working with NASA we could have predicted. But others, no one could possibly have imagined. Our NASA partnership continues to be a straightforward and mutually beneficial relationship.

Please allow me to finish where I started – because this is really the basic truth of my testimony today: Nothing but good – and great deal of good – can come from funding NASA and its programs.

Thank you.