



## **KVH Gyros Used in Carnegie Mellon "Red Team" Quest for Victory in DARPA Grand Challenge**

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***KVH's Fiber Optic Gyros Helping Carnegie Mellon University in \$2 Million Robotic Vehicle Race Across Mojave Desert***

MIDDLETOWN, R.I., Jun 16, 2005 (BUSINESS WIRE) -- On October 8, 2005, Carnegie Mellon University's Red Team will compete in the Defense Advanced Research Projects Agency's (DARPA) Grand Challenge. The objective: successfully race two driverless Hummers against other teams across 175 miles of Mojave Desert terrain in ten hours or less. It is the ultimate challenge in robotics engineering with a winner-take-all prize of \$2 million. The one catch- the vehicles have no drivers. Created in response to a Congressional and Department of Defense mandate, the DARPA Grand Challenge is a field test proposed to expedite research and development of autonomous ground vehicles to assist on the battlefield. The teams are using fiber optic gyros (FOGs) from KVH Industries, Inc., (Nasdaq: KVHI), a Red Team Silver Sponsor, to help them go the distance.

"KVH components provide outstanding performance for stabilizing and pointing our sensors," said Red Whittaker, Team Leader for Carnegie Mellon University's Robotics Institute. "Red Team chose KVH products due to a cost vs. performance equation. KVH was also chosen due to its recognized industry expertise in dynamic sensing-related projects and its long track record of providing sensing equipment at Carnegie Mellon University."

KVH's DSP-3000 FOGs are used on a stabilized sensor platform to sense pitch, roll, and yaw angular rates relative to the vehicle's position. Data from the KVH FOGs is used to stabilize the vehicle's navigation and guidance system regardless of uneven terrain and vehicle motion.

"We are happy to be selected by the Red Team for the DARPA Grand Challenge. KVH's FOG products are ideal for this type of rugged, demanding application," said Jay Napoli, director of FOG/OEM sales for KVH. "This is a challenging race, and we are confident that the Red Team and KVH's fiber optic gyros are up to the task."

Out of an initial field of 118 teams from around the U.S. and Canada, both of the Carnegie Mellon teams ([www.redteamracing.org](http://www.redteamracing.org)) are among the 40 semi-finalists to have successfully demonstrated their capability for success in the race. Now, Red Team and Red Team Too are focused on success at the national qualifying event in September 2005. By the time the Grand Challenge race day arrives on October 8, 2005, there will only be 20 teams left to compete for the grand prize, and only one will win.

The teams' goal is to have two vehicles on the Grand Challenge starting line this year. Veteran racer Sandstorm is the returning Grand Challenge record-holder. It is a radically modified 1986 Humvee. Upgrades for the 2005 season include a fresh engine, new drive-by-wire, fast computing and a million lines of solid software. Sensors include lasers, radar, and single-camera road following. Sandstorm has logged 2,000 autonomous miles, and it will log thousands more on the road to the Grand Challenge. H1ghlander, a 1999 H1 HUMMER, is a rookie contender that incorporates bold new technology. H1ghlander views terrain with seven laser scanners, three cameras, and two radar sensors. Several of these are pointed and stabilized by a 3-axis gimbal using KVH's DSP-3000 fiber optic gyros.

No prize was awarded in the inaugural 2004 Grand Challenge, as no team succeeded in completing the 142-mile course. Red Team's Sandstorm set records for speed and distance and came out ahead of the competition, traveling 7.4 miles before getting stuck. Both the veteran Sandstorm and H1ghlander have logged thousands of autonomous test miles.

With their all-fiber design and patented Digital Signal Processing (DSP), KVH's FOGs offer high reliability, superior accuracy and performance, and exceptional vibration, shock, and acceleration survivability at an affordable cost. KVH precision FOG products are used in diverse commercial and defense-related applications requiring a high level of accuracy.

Note to editors - High-resolution photos of a KVH fiber optic gyro and the Red Team vehicles are available at <http://www.kvh.com/mediasupport>. Video of KVH FOGs in action is available at <http://www.redteamracing.org/index.cfm?method=videos.view&videoID=62>.

For complete details on all of KVH's fiber optic gyro products, please visit <http://www.fiberopticyro.com>.

KVH Industries, Inc., designs and manufactures products that enable mobile communication, navigation, and precision pointing through the use of its proprietary mobile satellite antenna and fiber optic technologies. The company is developing next-generation systems with greater precision, durability, and versatility for communications, navigation, and industrial applications. An ISO 9001-certified company, KVH has headquarters in Middletown, Rhode Island, with a fiber optic and military navigation product manufacturing facility in Tinley Park, Illinois, and a European sales, marketing, and support office in Kokkedal, Denmark.

This release may contain certain forward-looking statements that involve risks and uncertainties. Forward-looking statements

include, for example, the functionality, characteristics, quality and performance of KVH's products and technology; anticipated innovation and product development; and customer preferences, requirements and expectations. The actual results could differ. Factors that may cause such differences include, among others, delays in KVH's development of FOGs for commercial applications as well as those discussed in KVH's most recent Form 10-Q filed with the SEC. KVH assumes no obligation to update its forward-looking statements to reflect new information or developments.

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