Spectrolab Powers Winning Solar Car

Commercially available solar cells bought online from Spectrolab, Inc., powered the University of Michigan's solar-powered car, M-Pulse, to its recent first-place finish in the American Solar Challenge. Spectrolab, a leading supplier of solar cells, panels and arrays for space and terrestrial applications, is a business of The Boeing Company (NYSE: BA).

The M-Pulse took nine days to win the 2,247.5-mile race in 56 hours, 10 minutes and 46 seconds. It finished 80 minutes and 6 seconds ahead of the competition. The Michigan Solar Car Team has been one of the most successful teams in solar racing history.

By searching the Internet, students at University of Michigan found the Spectrolab e-store (www.spectrolab.com/stores) and purchased approximately 3,000 dual-junction gallium arsenide terrestrial solar cells to power their car.

The solar panels on the M-Pulse generated enough power to charge the M-Pulse's batteries even when the car was running at 55 mph. Under normal conditions, the cell's electrical output was about 1,200 watts, but sometimes the cells were able to generate as much as 1,600 watts under some cloud conditions. This extra power was generated when the cells received additional solar energy reflected off the clouds. According to some team members, the solar cells worked so well that in varying sunlight the driver actually had to back off of the accelerator, so that the car wouldn't go over the maximum speed limit on the highway.

"I am extremely pleased that Spectrolab's solar cell technology was able to contribute to their success," said Dr. David Lillington, president of Spectrolab. "Congratulations to the team."

The American Solar Challenge, the world's longest race for solar-powered vehicles, began July 15 in Chicago and followed Route 66 to Claremont, Calif. Drivers of the 28 solar cars raced from 8 a.m. to 6 p.m. The U.S. Department of Energy is the main sponsor of the race for college students.

The M-Pulse's solar cells are called dual-junction because they are actually composed of two different solar cells epitaxially grown in series onto a single germanium base. This structure is more efficient than single-junction structures in capturing and converting solar spectrum energy into electricity. Each junction captures and converts energy from a different portion of the solar spectrum.

Spectrolab manufactures dual junction and triple junction solar cells. The dual junction solar cells average 21.5 percent efficiency for space programs and 23.7 percent efficiency for terrestrial applications. The triple junction solar cells average 26.5 percent efficiency for space programs and an average of 29 percent efficiency for terrestrial applications. Triple junction concentrator cells have also been developed with efficiencies up to 34 percent at 210 suns efficiency.

This isn't the first time Spectrolab solar cells have been used in a winning solar-powered car. In 1987, Spectrolab's then parent company General Motors sponsored a solar-powered car called the GM Sunracer. The Sunracer won the World Solar Challenge using silicon solar cells provided by Spectrolab as well as additional solar cells from other companies that Spectrolab assembled into the completed Sunracer solar panels.

The Michigan Solar Car Team, founded in 1989, is a nonprofit, student-run organization whose purpose is to design, finance, build and race a solar-powered vehicle in several competitions across the United States and abroad.

Spectrolab is headquartered in Sylmar, Calif., a suburb of Los Angeles, and is the world's largest manufacturer of space solar cells. It also is a leading supplier of NightsunÒ searchlights and solar simulators.

The Boeing Company is the largest aerospace company in the world and the United States' leading exporter. It is NASA's largest contractor and the largest manufacturer of commercial jetliners and military aircraft. The company's capabilities in aerospace also include rotorcraft, electronic and defense systems, missiles, rocket engines, launch vehicles, satellites, and advanced information and communication systems. The company has an extensive global reach with customers in 145 countries.

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