

# ***NEWS RELEASE***

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## **MICROCOSM ANNOUNCES ADVANCES IN DAYTIME STELLAR IMAGING**

### **For Immediate Release**

EL SEGUNDO, CA, March 21, 2006 – Microcosm, Inc., an aerospace engineering firm in El Segundo, California, today announced that it has been able to image 7.1 magnitude stars in daylight from sea level. The star sensing system, known as DayStar, has been developed under a Small Business Innovative Research (SBIR) Phase II contract with the Navy's Space and Naval Warfare Systems Command with collaboration of the U.S. Naval Observatory. The Microcosm-led sensor team included Goodrich Optical Systems of Danbury, Connecticut, and Michigan Aerospace Corp. of Ann Arbor, Michigan. Images of stars as faint as magnitude 7.1 were taken at various times throughout the day (including early afternoon with the sun very high in the sky) at the Microcosm facility in El Segundo, California.

According to Microcosm President Dr. James Wertz, "Precision imaging of stars in daylight has been a long-term goal to provide both attitude and position data to supplement other systems such as inertial navigation or GPS. This is a key technology in case GPS systems are jammed or are otherwise unavailable." The DayStar system consists of 3 telescopes in a single housing. Each telescope has a 3-inch aperture pointed 30 degrees from the vertical. The three fields of view are separated by 120 degrees in azimuth. The system can provide an inertial estimate of the attitude of the platform that it's on and, in conjunction

with a clock and a “down” sensor, can determine the user’s position anywhere on the surface of the Earth.

The advantage of seeing faint stars is that at least some stars will be in the fields of view nearly all the time, thus permitting essentially continuous updates of attitude and navigation. Microcosm reported that the system worked well, even though there were scattered clouds for many of the observation periods.

According to Wertz, “A similar, but substantially smaller system can also be used for daylight stellar imaging for aircraft. Planes can fly above the clouds if needed and the sky is quite a bit darker at aircraft altitudes.”

DayStar is a derivative of MicroMak, a miniature star sensor being developed by Microcosm for spacecraft applications. MicroMak work has been done under both Microcosm internal R&D and a number of SBIR contracts. It is currently being developed under a Phase II SBIR from the Defense Advanced Research Project Agency.

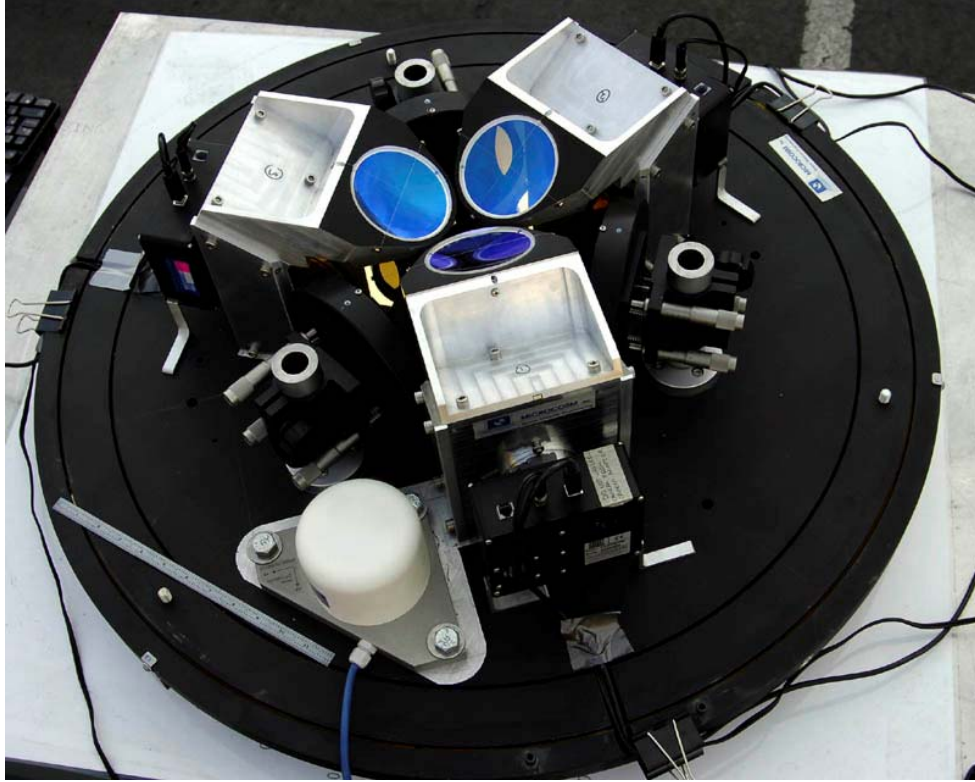
### **About Microcosm, Inc.**

Microcosm is a small business specializing in space mission engineering and the development of technologies and methods to facilitate more responsive space missions at substantially reduced costs. Microcosm’s three primary business areas include the Scorpius<sup>®</sup> family of Responsive, Low-Cost Expendable Launch Vehicles; Autonomous Guidance, Navigation and Control Systems; and Space Mission Engineering and Architecting.

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Microcosm's DayStar sensor can detect stars down to at least magnitude 7.1 in mid-day from the Microcosm facility in Los Angeles at sea level.  
(High resolution photo available at <http://www.smad.com/daystar1.tif>)



DayStar sensor with the sun shade removed. The sensor includes three separate telescopes and a local vertical sensor on a common baseplate. (High resolution photo available at <http://www.smad.com/daystar2.tif>)