



# News Release

## Defense Advanced Research Projects Agency

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IMMEDIATE RELEASE

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### **DARPA/Army A160T Hummingbird Unmanned Rotorcraft Completes Phase I Flight Tests**

#### *Plans to claim a class record for long endurance flight*

The Defense Advanced Research Projects Agency/Army A160T Hummingbird unmanned rotorcraft has successfully completed all planned phase I flight test demonstrations. Key phase I milestones included an 18.7-hour endurance flight on May 14-15 that will be claimed as a world endurance record for unmanned aerial vehicles in the weight class of 1,102 to 5,511 pounds. This is additionally, an unofficial world record for unrefueled rotorcraft endurance. In an earlier May 9 flight, the A160 achieved another important demonstration milestone by hovering out of ground effect at 16,700 feet density altitude for over seven minutes.

The gas-turbine-powered A160 flew the demonstrations autonomously. During the 18.7-hour flight, the aircraft carried a 300-pound internal payload with much of the flight conducted at an altitude of 15,000 feet MSL. The flight began May 14 at 8:55 a.m. Pacific Standard Time and ended May 15 at 3:36 p.m.

The May 9 flight, which was also autonomous, lasted a total of just under three hours. The aircraft spent the majority of the time airborne in forward flight at or above a 15,000 feet and achieved a maximum height of over 20,000 feet density altitude. The aircraft again carried a 300 pound payload during this flight.

The altitude and endurance capability of the A160T Hummingbird, combined with the ability to hover at altitude and land and takeoff vertically while carrying a significant payload weight, provides the U.S. military with a unique set of capabilities not now present in any operational aircraft. The A160T can carry multiple sensor payloads simultaneously, to perform missions such as persistent intelligence, reconnaissance, surveillance and target acquisition, communications relay, direct attack and other missions.

The recently completed flight test program started in June 2007 and has included a total of 14 flights and over 60 flight hours on the principal flight test vehicle, A007. Most of the flights have been based at Southern California Logistics Airport, Victorville, Calif., with the most recent flights taking off and landing from the U.S. Army Yuma Proving Ground, Yuma, Arizona, test site. The long endurance flight marks the end of a set of proof of concept demonstrations that has also included flight at a maximum speed of 142 knots, carriage of a 1,000 pound payload over 962 kilometers during an eight-hour flight, and the high-altitude hover out of ground effect.

(more)

“This has been an aggressive flight test program, and A160 has made excellent progress. We achieved a broad set of program goals and have completed initial exploration and expansion of the aircraft flight envelope,” notes DARPA program manager Phil Hunt. “The result has been a steadily increasing level of confidence and reliability. We have shown the value of the A160 as a new sensor platform for the U.S. military.”

The DARPA A160 program will now begin an eight-month bridge phase to consolidate vehicle technology and reliability for the aircraft’s use with a number of sensor programs. The program plans an additional 60 hours of flight envelope expansion and 250 hours of ground testing and will undertake a number of system improvements modifications.

The A160T Hummingbird features a unique optimum speed rotor technology that significantly improves overall performance efficiency by adjusting the rotor’s speed at different altitudes, gross weights and cruise speeds. The autonomous unmanned aircraft, measuring 35 feet long with a 36-foot rotor diameter, will eventually fly at speeds of more than 140 knots with a ceiling of 20,000 to 30,000 feet altitude for more than 20 hours, and a high hover capability of up to 15,000 feet altitude.

The A160T was developed by Boeing. Boeing has submitted an application to the National Aeronautic Association, the U.S. sanctioning body for the Fédération Aéronautique Internationale, to claim the world endurance class record officially.

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