

Ham Radio-Carrying Rocket Exceeds Goal; Avionics Recovered Intact

NEWINGTON, CT, May 19, 2004 -- An Amateur Radio direction finding team has recovered intact the ham radio avionics package from an amateur rocket that made history by breaking through the barrier of space May 17. Following its launch from Nevada's Black Rock Desert, the solid fuel rocket easily exceeded its primary goal of attaining an altitude of 100 km -- 62 miles -- considered the boundary between Earth's atmosphere and space. Avionics Team Leader Eric Knight, KB1EHE, told ARRL that the 21-foot, 10-inch diameter Civilian Space Xploration Team (CSXT) GoFast vehicle reached an altitude of 77 miles according to its onboard instruments, making it the first amateur rocket to do so.



An artist's depiction of the GoFast rocket. Knight said friction encountered during the rocket's high velocity flight burned away most of the paint and decorative decals.

"We well shattered any definition of space, and everybody's jubilant here," Knight told ARRL from Nevada. "Within two seconds into the flight we were already supersonic." Knight said 75 to 100 people -- many of them radio amateurs -- were on hand to witness the launch. Several others asked how they could become licensed, he said. The launch itself "went like clockwork," Knight said, calling it "an awesome experience."



During the vehicle's descent to Earth, a ballistic parachute deployed to keep it from tumbling, slow its velocity and make it hit the ground nose first. "The avionics package looks pristine," Knight said. "It could fly again." That's not likely however, since the CSXT team is hoping the avionics will end up in the Smithsonian Air and Space Museum. "Even though it could fly again, it won't fly again for posterity's sake," he added.

(LR) CSXT avionics crew members Don Skinner, N1HWR, Eric Knight, KB1EHE, and Rod Lane, N1FNE, work on the rocket's telemetry system in a basement workshop.

A volunteer aerospace tracking and recovery team of Silicon Valley Amateur Radio operators calling itself Stratofox was able to zero in on signals from the falling rocket, which came down in rugged, mountainous terrain some 25 miles downrange of the launch site. Knight says Merlin Systems -- a project sponsor -- provided the tiny bird tracking transmitters operating in the 224MHz range which were imbedded into the parachute shroud lines solely for tracking purposes.

Knight says that after the rocket's return, the team was pretty quickly able to determine within a mile where it had landed, but it took another 24 hours for the Stratofox team to pin it down and recover the entire payload. "Their passion is to find things," Knight said of the Stratofox searchers.



The avionics team's homebuilt patch-type antennas contributed to the mission's success. "We can make them conform to the surface of the airframe," Knight explained. The antennas served the 33cm telemetry downlink and 2.4 GHz Amateur Television transmitters as well as the onboard GPS units.

A color ATV system was able to provide some photos during the first several seconds of the flight. "We saw some spectacular pictures through liftoff plus about five or ten seconds," Knight said. The rocket's spin -- about nine cycles per second -- caused the video to blur after that, but Knight said the team hopes to recover some individual video frames using computerized techniques.

(Photo) This 2002 CSXT attempt to reach space failed when the rocket engine exploded three seconds into the flight.

Because the CSXT team found itself almost exclusively focused on the mission, a launch site HF special event station, K7R (for "rocket"), didn't get on the air very much, Knight said.

The avionics team includes eight Amateur Radio licensees, most of whom also were involved in an unsuccessful 2002 CSXT launch attempt ("Ham Radio Package Survives Launch Disaster; 'Rocket Boys' Regroup"). The entire 18-member CSXT team is headed by CSXT founder and Program Director Ky Michaelson, a retired Hollywood stunt man.