

FOR: IMMEDIATE RELEASE

DTS Data Recorders Help NASA Improve Emergency Locator Transmitters

Seal Beach, CA (Sept. 2015) – For the third time in less than two months, researchers at NASA's Langley Research Center in Hampton, Virginia, intentionally sent a small Cessna aircraft plummeting to the ground in a drop test meant to simulate a severe, but ultimately survivable crash. On Aug. 26, 2015, a Cessna 172 plunged 100 feet at 55 miles per hour, its nose pitched up, tail angled down, then struck a pile of dirt and flipped over with a brutal, tail-snapping crunch.

This was the final crash in a series testing emergency locator transmitters (ELTs), which are designed to send coordinates to emergency responders after a plane crash, but often fail to signal because of damage sustained during the impact.

Each of the three Cessna tests simulated different, but common, crash conditions. The first plane was dropped from about 80 feet and came in at nose level on concrete. The second was hauled up to 100 feet and crashed nose down into soil, and the third was dropped from 100 feet, tail down, into soil.

NASA researchers equipped each plane with five ELTs, two crash test dummies, approximately 40 cameras and test equipment from [Diversified Technical Systems \(DTS\)](http://www.dtsweb.com), which included 64-channels of TDAS data recorders, a Smart Battery and TDAS Distributor. Researchers will examine all the data and images from the multitude of cameras, both on the plane and around the test site, to learn how crashes affect the ELTs with the ultimate goal of improving ELT performance on all aircraft.

The NASA engineering team is now analyzing the data from the three Cessna crash tests, validating the computer models



After being hoisted 100 feet in the air, the Cessna 172 hit the ground tail first and flipped over, simulating a severe, but survivable crash. NASA researchers will examine data captured by DTS data recorders to learn how crashes affect emergency locator transmitters.

Credits: NASA/David C. Bowman

and compiling the data set. When complete, the data will be taken to the national international committees working on updating ELT specifications, which will make recommendations on how to improve ELT systems and installations.

For nearly 15 years, DTS small on-board data acquisition (DAS) systems have been an important component to many tests at Langley, since they are rugged enough to survive harsh impacts and still accurately deliver critical test data.

"It was a pretty severe crash," said Lisa Mazzuca, NASA's Search and Rescue mission manager. "That's the whole idea behind this — severe but survivable. Those two passengers are going to need some help."

ELTs have to work in the extreme circumstances and be able to withstand excessive vibration, impact damage and even fire. This project is designed to find practical ways to improve ELT performance and robustness, giving rescue workers the best chance of saving lives. The research is funded by the Search and Rescue Mission Office at NASA's Goddard Space Flight Center in Greenbelt, Maryland.

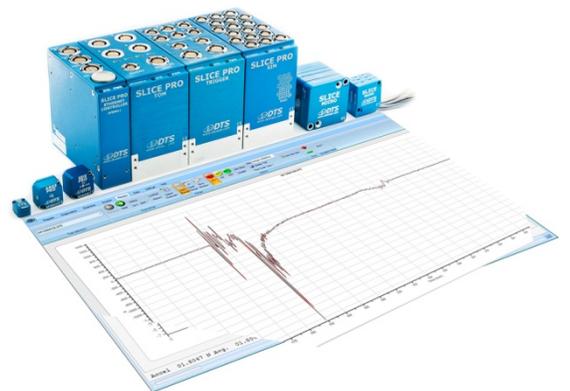
The Cessna was chosen for testing because it is the most common general aviation airframe of all time and research revealed no correlation between ELT performance and any particular aircraft. By dropping the Cessna planes on different surfaces the crash tests come as close as possible to replicating real-world conditions. Plus the five ELT units mounted on the test aircraft work exactly as they would on an airborne aircraft, even transmitting information to satellites.

Currently NASA uses DTS's miniature on-board DAS at four different facilities for a variety of dynamic tests including heavy payload and flight testing, aerobrake testing, and on the Low-Density Supersonic Decelerator (LDSD).

For more information on DTS's data acquisition systems, visit www.dtsweb.com or contact sales@dtsweb.com.

Watch the Aug. 26, 2015 Crash Test at:
<http://www.ustream.tv/recorded/71761800>

Read more about the first and second crash tests - [Crash Test Assesses Plane Emergency Locator Transmitters](#) and [Second Crash Harvests Valuable Data to Improve Emergency Response](#)



What makes DTS data recorders unique is the ability to capture reliable, high-speed data even in crash and blast environments.

DTS data acquisition systems (DAS) and sensors are used worldwide in aerospace, automotive, blast and in-dummy applications for occupant safety and product testing.

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