

**CTI Approved Press Release
For Immediate Release
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NAVAIR/CTI Team Successfully Flies TSAS Brownout Solution

California, Maryland – A Chesapeake Technology International Corporation (CTI) led small business team funded under a NAVAIR SBIR Phase II contract successfully demonstrated their Tactile Situational Awareness System (TSAS) in a flight demonstration at St Mary’s county regional airport in July 2009. The team included hardware and software/systems specialists from CTI, Crystal Group (Cedar Rapids, IA), ALF Engineering (Castle Rock, CO), AirTec Flight Services (California, MD) and Engineering Acoustics in Orlando, FL.



CTI’s TSAS system enables a helicopter pilot to maintain a stable hover position when in a degraded visual environment (DVE) and ensures that the pilot does not experience pilot-induced oscillations/excursions outside the prescribed flight envelope during up-and-away maneuvering. The technology behind the TSAS development is based on several years of experimentation by Dr. Angus Rupert from the U.S. Army Aeromedical Research Laboratory (USAARL) located in Ft Rucker, AL. This SBIR project is sponsored by NAVAIR PMA 276.

TSAS enables “tactors” (buzzer type devices) incorporated into a thin vest worn on the upper torso to send tactile signals to a helicopter pilot. The signals are generated by the aircraft inertial navigation system (INS)/attitude reference system and indicate through vibration to the pilot when he/she is maneuvering in unbalanced/asymmetric flight. This is particularly effective in potentially dangerous situations occurring during inclement weather or brownout/whiteout conditions generated from rotor down wash that obscures the pilot’s visual horizon.

Chesapeake Technology International (CTI) has completed flight tests of a TSAS prototype system using a Robinson R-44 test helicopter. TSAS will use platform sensor information to determine what signals to send to the tactors to give the pilot supplemental information that he/she may be entering into a dangerous portion of the flight envelope. If the platform is not able to provide navigation sensor input (or it is faulty), the TSAS system will use an enclosed EGI (Embedded GPS/INS) as its primary navigation sensor. It should be emphasized that TSAS is not a replacement for current/future visual/aural systems that cue a pilot to the approach of hazardous conditions; rather it is a supplemental system to aid the pilot in avoiding/safely returning from dangerous flight regimes.



CTI is a small, veteran-owned technology company headquartered in California, MD with personnel in Virginia, North Carolina, Colorado, and California. CTI develops software and systems for C4ISR systems, EA-6B flight simulators, and Unmanned Airborne Systems (UAS).

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