



DS Success Story

Updated Testing Procedures of Aircraft Avionics Improves Flight Safety For H-1 Helicopter Aircrew

<https://dodiac.dtic.mil>

Customer:

Naval Air Warfare Center Weapons Division (NAWCWD)

Challenge:

The H-1 Helicopter Fleet required an update to the Mission Computer and H-1 Integrated Avionics Suite (IAS) to improve aircraft lethality, survivability, maintainability, and flight safety. One of the specific objectives of a recent update was to improve the aircrew's ability to identify the aircraft's true altitude and improve overall H-1 safety by reducing the likelihood of confusion due to a potential discrepancy between the Barometric Altimeter and the Low Airspeed Data System (LAADS) that could be displayed under specific high-demand, flight conditions.

LAADS was designed and integrated as part of a recently released software configuration set (SCS) deployed in the Fleet to increase situational awareness, reduce cockpit workload, and improve the capability to identify, track, and target threats during these demanding flight conditions. While these upgrades met the design and performance requirements to improve cockpit and flight displays and improve aircraft status during critical flight regimes, it was the Booz Allen

	<p>Hamilton test team who identified the necessity to update the test procedures to more accurately and fully test the new capabilities within the laboratory environment.</p> <p>Booz Allen Hamilton provided multiple procedural updates to the H-1 test cases and procedures which resulted in a more accurate test and representative evaluation of the SCS and integrated LAADS. Those findings led to recommended operational changes for the aircrew which provided an additional procedural safety layer and increased H-1 safety across the Fleet.</p>
Approach:	<p>Booz Allen Hamilton utilized the NAWCWD's system life cycle plan (SLCP) management processes to test, evaluate, verify and validate (V&V) the system and ensure it met the design requirements. It was early in the V&V process that the test team identified the need to update and refine the testing procedures to more fully and accurately test the new SCS. As a result, all the test cases were reviewed and the applicable test procedures were updated. That process involved a concerted effort by five engineers to methodically review eleven separate test case functional areas, review and submit corrections for hundreds of pages of test procedures for peer review, receive and integrate peer feedback, and once approved, publish and implement the new procedures all within the limited developmental timeline of the SCS.</p>
Value:	<p>Booz Allen Hamilton completed and implemented this full SLCP project, which improved the accuracy of the avionics testing and provided a more representative evaluation of the system under demanding flight conditions. The implementation of these improved test procedures has increased flight safety for 280 aircraft and 660 aircrew by improving aircrew situational awareness through integration of new SCS capabilities.</p>

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