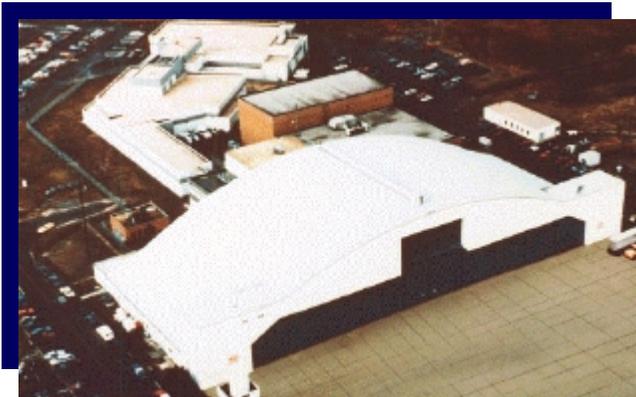




# ACETEF

*Air Combat Environment Test and Evaluation Facility*

Shielded Hangar

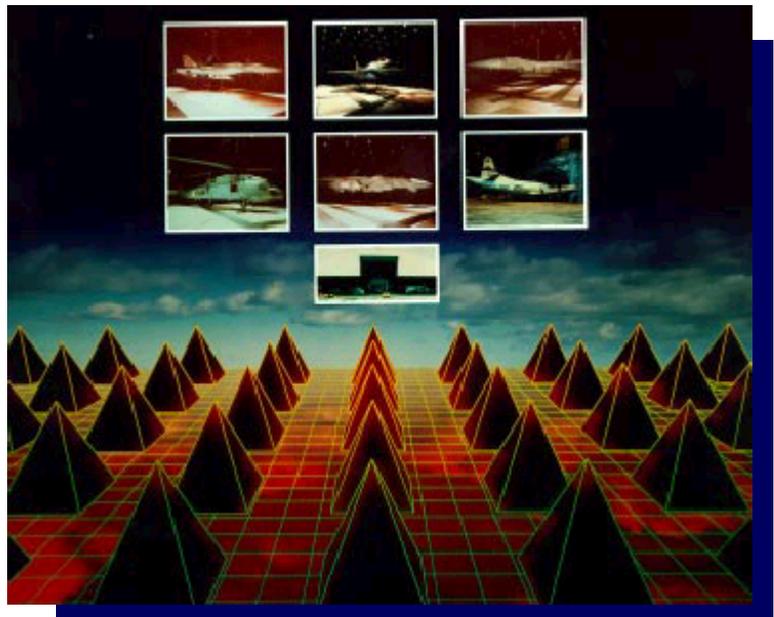


The Naval Aviation Systems Team Shielded Hangar, located with access to three major runways, provides a specialized environment for testing that includes the Aircraft Anechoic Test Facility (AATF). The Shielded Hangar has interior walls and doors covered with wire mesh and one anechoic wall, and is large enough to accommodate multiple large aircraft. Inside the hangar, an anechoic chamber provides a secure and realistic test environment for system stimulation of tactical-sized aircraft.

The Shielded Hangar is designed to allow single site electromagnetic environmental effects (E<sup>3</sup>) testing. There are over 15 specialized facilities that offer experienced personnel and unique test facilities to provide these services. This means that an aircraft can undergo several different E<sup>3</sup> tests while test personnel, ground support equipment, and maintenance support remain at the same location. Support capabilities include electromagnetic compatibility, electromagnetic interference, electromagnetic vulnerability, TEMPEST, COMSEC certification, precipitation-static, lightning, and low-level and direct electromagnetic pulse testing.

Over 100 government and contractor engineers and technicians support these test efforts. They identify deficiencies, recommend feasible solutions to problems, and refine test techniques to meet changing requirements. In addition to conducting E<sup>3</sup> testing for the Navy, they have supported E<sup>3</sup> testing for other agencies (Army, Air Force, Coast Guard), commercial industry, and foreign military programs. A full and varied test schedule has engendered a group of experienced test engineers and development of efficient, cost-effective test methodologies.

The E<sup>3</sup> test facilities at Patuxent River were developed to provide test and evaluation on aircraft, weapons systems, and components. The facilities provide aircraft electrical power, ground support equipment, tiedowns, grounding, aircraft maintenance facilities, workspaces, classified storage, access to Naval aircraft technical libraries, customized test instrumentation, and data processing support.



## Anechoic Chamber

The AATF anechoic chamber supports operations with more stringent and secure test requirements than the Shielded Hangar can accommodate. The anechoic chamber is 100 feet long, 60 feet wide, and 40 feet high, and can hold tactical aircraft and helicopters. The AATF is suitable for testing the nose of larger aircraft, as well as a variety of large electronic platforms such as spacecraft, command and control, and communication vehicles.

Much of the chamber's test accuracy stems from a welded steel shell lined with radio frequency (RF) absorber cones that make it a radiant energy-absorbing test space. The effect is an anechoic (or "no echo") test environment simulating free-space flight. The overall signal attenuation in the chamber is greater than 100 dB over the frequency range of 140 kHz to 40 GHz. The aircraft or system under test can be suspended with a 30-ton capacity crane that allows configurations representing actual flight conditions. This allows the capability to physically orient the aircraft and test equipment to simulate free flight, without creating electromagnetic anomalies. In addition, the suspension of the aircraft allows landing gear and flight control movement during testing. The shielded free-space chamber environment is secure from external electromagnetic noise. Several test facilities use the anechoic chamber to provide a multispectral stimulation and simulation environment for the aircraft and systems that closely resembles actual combat.

## New Chamber

A large anechoic chamber is currently under construction. The new chamber is located adjacent to the Shielded Hangar and will be electronically connected to support laboratories across NAWCAD. The chamber will be capable of supporting multiple tactical-sized aircraft or one large aircraft in its 180 x 180 x 60 feet of interior space. There will be two 40-ton hoists in the new chamber.



*For further information, contact:*  
*Aircraft Simulation Branch, 516100A*  
*301-342-7601 FAX 301-342-7606*  
[www.nawcad.navy.mil/nawcad/test\\_eval/acetef](http://www.nawcad.navy.mil/nawcad/test_eval/acetef)

*Naval Air Warfare Center Aircraft Division*  
*48182 Standley Road, Building 2035, Unit 5*  
*Patuxent River, Maryland 20670-1909*