



ACETEF

Air Combat Environment Test and Evaluation Facility

The Naval Air Warfare Center Aircraft Division is at the leading edge of electromagnetic environmental effects (E³) and acts as the Navy's center of expertise in aircraft E³ research, development, test, and evaluation. There are over 15 specialized facilities located at a single site with runways and complete aircraft support. The E³ test facilities at Patuxent River were developed to provide test and evaluation of aircraft, weapon systems, and components. Therefore, 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.

Electromagnetic Interference Laboratory

The EMI laboratory is one of the top facilities in the Department of Defense. Its primary function is to provide MIL-STD-461/462 evaluation capabilities to the Navy and DOD. The laboratory has supported an extremely diverse range of projects, including hand-held equipment, electrical power systems, crash cranes, aircraft tow tractors, and aircraft and communication shelters. This laboratory also provides services such as engineering analysis, troubleshooting, fleet support, EMI consultation, document review, site survey emission control assessment, and programs to address many of the uncertainties associated with electromagnetic measurements.



Aircraft Anechoic Test Facility Anechoic Chamber

This capability is located inside a shielded hangar and accommodates tactical aircraft and helicopters. The test area is 96 feet long, 60 feet wide, and 30 feet high. The chamber is lined with 52,000 RF absorber cones, providing an ultra quiet RF environment to simulate free-space flight and a secure test environment. Signal attenuation is greater than 100 dB from 140 kHz to 40 GHz. Filtered electrical power and ground support equipment is available, as well as a 30-ton capacity traveling crane.



Advanced Systems Integration Facility Anechoic Chamber

Located adjacent to the shielded hangar, this 180 by 180 by 60 foot high, RF-secure chamber was designed to provide the RF-quiet environment required to support E³ testing and to operate as an integral part of the Air Combat Environment Test and Evaluation Facility. This unique national asset provides test opportunities in both developmental and operational test and evaluation of aircraft, space electronic payloads, ground and shipboard electronic systems, foreign material exploitation, and a wide variety of classified systems.

Electromagnetic Environmental Effects Facilities

Naval Electromagnetic Radiation Facility

This capability simulates the worldwide fleet operational electromagnetic environment and evaluates effects on an aircraft's critical functions, mission systems, and vehicle systems. The NERF can be used to support intersystem EMC, EMR, HIRF, HERO, or any type of radiated susceptibility test. It supports military and commercial aircraft, unmanned air vehicles, ground support equipment, and air-launched ordnance system testing.



Lightning, Precipitation Static, and Electrostatic Discharge Simulators

The lightning simulators range from large, fixed, full-threat simulators to portable, moderate-threat, smaller simulators. Both direct and indirect lightning effects can be evaluated. The precipitation static simulators provide up to 400 kV, 1.5 ma charges to a test item via high-voltage charging probes. The 25 kV electrostatic discharge simulator mimics the full threat effects of the natural human body electrostatic discharge environment.

Electromagnetic Transients Test and Evaluation Facility

Threat-level EMP, lightning, precipitation static, and electrostatic discharge testing capabilities are resident in this facility. A high-performance, fiber optic data acquisition and processing system designed for single-shot, fast rise-time measurements is available to collect data during testing. The high-voltage laboratory supports maintenance, improvements, and the development of new capabilities.

TEMPEST Communications Center

This facility is capable of communicating with aircraft and land-based stations in the HF, VHF, and UHF ranges. The center is configured to operate in secure as well as plain modes of operation for voice, satellite communications, and data in both receive and transmit configurations through two antenna arrays for each respective radio frequency band.

Shielded hangar facilities and capabilities include:

- Aircraft hangar, 45,000 square foot deck area, 60 foot high ceiling
- Access to three major runways
- Interior walls and doors covered with wire mesh and one anechoic wall
- Signal attenuation 30 dB at 10 kHz, 67 dB at 1.0 MHz, and 20 dB at 3 GHz
- Filtered electrical power (28 VDC, 115/60, 115/400, 220/400, 440/400)
- Ground support equipment available

For further information, contact:
Aircraft Simulation Branch, 516100A
301-342-7601 FAX 301-342-7606
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