



ACETEF

Air Combat Environment Test and Evaluation Facility

Electronic Warfare Integrated
Systems Test Laboratory

The mission of the Electronic Warfare Integrated Systems Test Laboratory (EWISTL) is to provide realistic open-loop multispectral environment stimulation to electronic warfare (EW) systems during developmental and operational testing in order to provide hardware-in-the-loop data. This data is



used to quantitatively assess the performance of the system under test (SUT). These EW systems may include radar warning receivers, electronic support measures, defensive electronic countermeasures, standoff and support jammers, communications intercept and communications jammers, missile warning sets, and integrated electronic combat system suites. Radio frequency (RF) stimulation of bench

and installed SUT's is provided through direct injection, closed hats, or free-space radiation. EWISTL support areas include the development, operation, and maintenance of EW scenarios, emitter descriptions, open-loop radar and communications simulators, missile launch stimulators, data collection and analysis hardware/software, special instrumentation. EWISTL also supports configuration of test equipment for customer use, operation and knowledge of SUT, threat signal, and doctrine research.

EWISTL capabilities are linked to the Air Combat Environment Test and Evaluation Facility architecture by the Shared Memory Network. The Advanced Tactical Electronic Warfare Environment Generator (ATEWES) and Remote Antenna Positioning System (RAPS) are fully integrated with the Simulated Warfare Environment Generator (SWEG) for real-time dynamic scenario control and interaction. All future test capabilities will combine initial operating capability with integrated capability.

ATEWES

The ATEWES is an EW environment simulator capable of providing a three dimensional electromagnetic environment of RF simulating up to 1,024 emitters with up to four simultaneous pulses each microsecond on up to 512 moving platforms to an EW SUT. Frequency coverage for the ATEWES is continuous from 50 MHz to 18 GHz and 32 to 40 GHz. The ATEWES distributes RF signals via amplitude to provide SUT sensors with correct angle-of-arrival stimulation. The ATEWES operates in stand-alone mode or integrated with the SWEG for external emitter control. The ATEWES also accepts other threat stimulator inputs, incorporates these signals into the dense emitter environment, and distributes to the SUT receivers via injection or radiation.

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RAPS

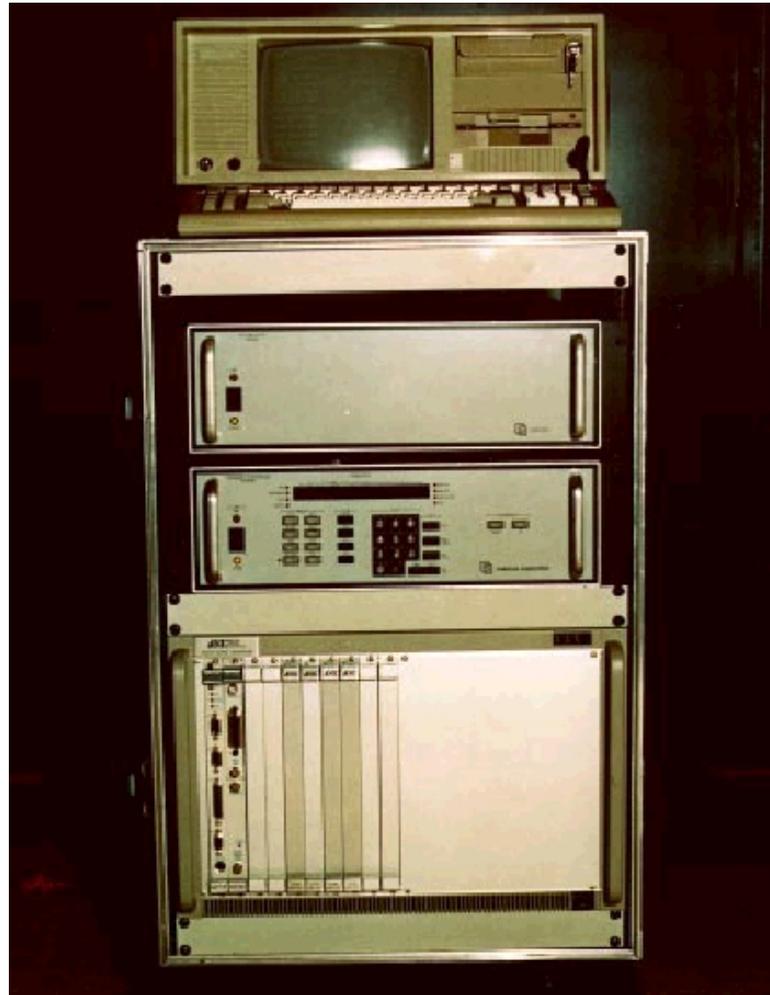
The RAPS is a computer-controlled, mechanically dynamic target positioning system. The RAPS is used to position up to two targets in a 10 x 10 foot area within the field of view of a single electronic combat receive aperture. The RAPS has 4 degrees of freedom and maintains target pointing angle back to the SUT aperture. Various EO/IR/RF targets can be positioned by the system. Platform dynamics can be controlled locally by scenario control or remotely via the SWEG.

Micro Tactical Electronic Warfare Environment Stimulator (μ TEWES) & Multiple Electronic Warfare Emitter Generator (MEWES)

The μ TEWES is a portable EW environment simulator capable of providing a single output at RF simulating up to 16 emitters to an EW SUT. Frequency coverage for the μ TEWES is continuous from 500 MHz to 18 GHz. The MEWES is a portable EW environment simulator comprised of off-the-shelf test equipment controlled via IEEE-488. The system is capable of providing a single output at RF simulating one emitter to an EW SUT. Frequency coverage for the MEWES is continuous from 500 MHz to 18 GHz.

Jammer Technique Analysis

EWISTL hosts numerous pieces of commercial off-the-shelf test equipment that can be used for evaluating the output of EW jammer systems. A noise signal's bandwidth, power level, duty cycle, and many other parameters can be detected, monitored, and analyzed.



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