

Mission. Develop and evaluate active and passive EW systems and associated embedded software. Investigate new systems and concepts during developmental T&E and perform in-service engineering support for EW systems software. Perform EW suite integration and pre- / post-flight checkout and troubleshooting.

Unique Features. Serves as the EW mission area leader within the Naval Aviation Enterprise (NAE) team and is recognized as a Center of Excellence. The Center maintains unique EW facilities not duplicated anywhere else in the DoD and strives to enable the joint warfighter to dominate the electronic spectrum.

Combat Support. During more than 60 years of service to the Navy and the nation, beginning right after World War II, Point Mugu has made its mark on practically every major conflict since by testing and helping to develop weapons that work. They supported aircraft in every major conflict since 1986, including EA-6B squadrons during Operation Iraqi Freedom, Enduring Freedom, and the Global War on Terror with EW database intelligence, information warfare, and electronic upgrades. They helped achieve initial fleet capability of JDAM on fleet aircraft and have continued to improve tactics and procedures developed with assistance from the Point Mugu EW team. In March 2011, the EA-18G participated in its first combat missions, beginning with Operation Odyssey Dawn, using newly developed intelligence files and techniques, tactics, and procedures.



RDT&E. (Products and services listed below in alphabetical order.)



- | | |
|--|--|
| <ul style="list-style-type: none"> Airborne electronic attack (AEA) Battle management Chaff and decoys Communications Counter electronic attack training Countermeasures Destruction of enemy air defenses (DEAD) Direct fleet support 24/7/365 Fleet reach back Electronic attack (EA) payloads Foreign military sales (FMS) Intelligence and sensor engineering Interoperability and battle space integration Jammers (self-protect and standoff) Jammer technique optimization (JATO) Life cycle support Measurement facilities and assets Mission data files (MDFs) | <ul style="list-style-type: none"> Mission planning Modeling and simulation (M&S) Operational flight program (OFP) Prototyping and concept development Radar cross section (RCS) measurements Radar systems Rapid reprogramming Research and development Sea Test Range Simulation (air and surface) Support equipment Suppression of enemy air defenses (SEAD) Tactics, techniques, and procedures (TTPs) T&E on the Sea Range Threat and target identification Training (Fleet training air / maritime) Weapon platform integration |
|--|--|

Aircraft Weapon Integration Facilities. Point Mugu and China Lake integrate aircraft weapons, including the AV-8B, EA-6B, EA-18G, F/A-18 A-F, EP-3E, H-1, JSF, UxSs, and F-22. The EA-6B Systems Integration Facility at Point Mugu, for example, is the only AEA facility of its kind, and VX-9 conducts operational T&E of EW systems and software for Navy and Marine platforms. The EA-6B Prowler, an EW platform based on the A-6 Intruder strike aircraft, provides soft and hard-kill SEAD and SIGINT for the U.S. Navy and Marine Corps. The EA-6B EW work is transitioning to the EA-18-G Growler, which will eventually replace the EA-6B as the cornerstone of the Navy's AEA mission.

Aerial Threat and Surface Targets Facilities. These facilities provide threat realistic aerial, seaborne, and ground platforms as well as threat and data gathering systems to support weapon system T&E and fleet training as the Navy's premier team. T&E is provided for all Navy target systems. The Department's Airborne Threat Simulation and Combat Environment Simulation Divisions combine as the Navy' premier team for developing and deploying multi-use and multi-service EW and simulation systems. The Point Mugu complex is the only area that operates all of the current subsonic and supersonic aerial targets and conducts testing of the Multi-Stage Supersonic Target (MSST) and the Sub-Sonic Aerial Target (SSAT). (See separate *Aerial Threat and Targets Facility Quick Facts.*)



AEA. Provides Warfighters with the ability to detect, analyze, attack, and defeat electronic threats through complete AEA systems integration, testing, and life cycle support. (See separate *AEA Facility Quick Facts.*)

- **Ensures AEA Warfighter Readiness.** EA-6B aircraft, ALQ-99 jamming pods, USQ-113 communications jammer
- **Enhances AEA Warfighting Capability.** Intrepid Tiger, ALE-43 chaff pod
- **Enables Next-Generation AEA.** Next-Generation Jammer, ITALD-J, CORPORAL UAS

Airborne Threat Simulation Organization (ATSO). Provides Warfighters with highly representative, validated, timely, and affordable threat electronic-combat environments in which to test and train. Capabilities include the design, development, and operational support of electronic attack and radar airborne threat emitter systems, electronic attack simulators, threat radar simulators, targets, and training.

Collaborative Mission Data Engineering for Readiness and Rapid Reprogramming. Scope includes offensive and defensive EA, EW support systems, order of battle (OOB), electronic intelligence (ELINT), and data collaboration across boundaries to address common issues and interests, shared technology, processes, interim products, cross training, and developmental assignments.



ECSEL. Evaluates active and passive EW systems and associated embedded software. Investigates new systems and concepts during developmental T&E and performs in-service engineering support for EW systems software, both MDFs and OFPs. ECSEL also performs EW suite integration and flight checkout and troubleshooting. (See separate *ECSEL Facility Quick Facts.*)

EWDS Laboratory. Since 1992, the Electronic Warfare Data Systems (EWDS) team has provided the latest operational and intelligence data including OOB, performance and characteristics of each threat, electronic intelligence for threat identification, and targeting information to defeat the threat. The first EA-6B release occurred in 1992.



EW Joint Mission Planning System (JMPS). Provides computer tools to aid in planning aircraft missions. It consists of computer hardware using common core software called the JMPE, combined with Unique Planning Component (UPC) software that supports the particular aircraft or user. JMPS supports most DoD aircraft, weapon, and sensor assets.

Electronic Warfare Integration Laboratory (EWIL). EWIL provides an EW integration and test laboratory for all phases of life cycle from technology development to in-service engineering. Supports developmental flight testing of EW systems and suites.

EW Laboratory IT Complex. This facility is a gigabit-secure, virtual machine desktop test environment. It has a 90% virtualized IT infrastructure with a 90% blade server configuration with enormous storage capacity and web services. The complex provides support across five different buildings and has a classified laboratory local area network (LAN). Numerous certified system administrators and information assurance officers are on staff.



The logo e*WARFARE represents activities where cyber warfare, EW Systems Architecture (EWSA), and EW Battle Management (EWBM) activities converge for rapid fielding execution and maximum warfighter benefit. EWBM services increase effectiveness and provide real-time cueing, display, and delivery of EW information and cyber services.

F/A-18 and EA-18G Support. Point Mugu activities acquire, integrate, and sustain effective weapon systems capability for the F/A-18A-F and EA-18G Warfighter by providing responsive systems engineering, acquisition logistics, coordination, and overall program management in a cost efficient manner.

- **Current Programs** (alphabetical order). AARGM, ACS, AESA/APG-73 (ACAT I), AIM-9X, ALQ-99, ALQ-228, ALR-67(V)3 (ACAT II), AMC&D, AMRAAM, ANAV, ARC-210/DCS, ATFLIR, Distributed targeting, DRFM, EA-18G (ACAT I), F/A-18A/A+BCD, F/A-18 E/F (ACAT 1), FIRST, FTI II, ICAP III, IDECM, IRST (ACAT II), JDAM, JHMCS, JMPS, JSOW, Litening, MIDS, MIDS-JTRS, Mode 5 IFF, PIDS, SE, Sharp/ATARS (ACAT III), SLAM-ER, SLMP/SLAP/SLEP/CBR+, Software C++, TFLIR (ACAT II), Trainers

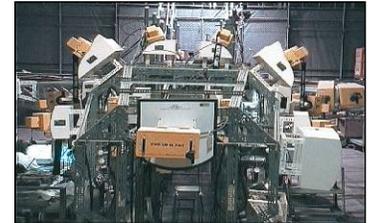




Information Operations Range. Mission is to create a flexible, seamless, and persistent environment that enables combatant and component commanders to achieve the same level of confidence and expertise in employing IO weapons that they have in kinetic weapons. EW Spiral provides a tool to support emerging EW/IO technologies and training against EW / IO target sets.

IR Measurements and Countermeasures (CM) Testing. The primary mission is to study IR signature and countermeasures effectiveness and test data to support validation of threat engagement models, signature suppression techniques, and characterize platforms and countermeasures devices. Capabilities include calibrated IR signature measurements for Tiger Pod, air-to-air IR countermeasures testing for Airborne Turret Infrared Measurement System (ATIMS) III Pod, aircraft IR signature modeling, IRCM flare lot acceptance testing, and IR signature and threat acquisition range analysis.

Iron Crow Laboratory. Designed to replicate aircraft EW systems, specifically for end-to-end systems testing and full path line sweeps by using organizational EW test program sets (OEWTPS) in conjunction with the AN/USM-670 or AN/USM-713 test sets. Iron Crow is a “one of a kind” facility, established in 1982, equipped with a full sized “hot mock-up” of various Navy aircraft with their associated EW systems and RF transmission subsystems. The software support activity (SSA) personnel use this facility for developing and updating AN/USM-670 OEWTPS and AN/USM-713 signal generator test set software and hardware. (See separate Iron Crow Facility Quick Facts.)



JATO. Established in 1984 to coordinate testing of new jamming waveforms on the ALQ-99 Universal Exciter. Today, the team develops, validates, and provides optimal radar and communications jamming TTPS using software models, analysis and laboratory, ground, field, flight, and foreign material exploitation (FME) testing. The team improves EA-6B / EA-18G receiver / emitter interaction and reduces interference with Blue Forces.



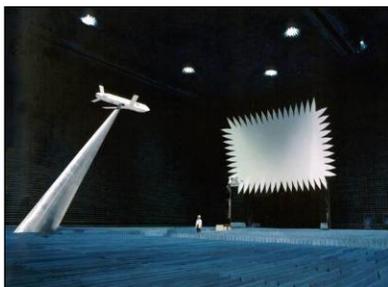
Joint Electronic Advanced Technology (JEAT). JEAT identifies and evaluates low-cost and near-term technologies where commercial or military off-the-shelf components can be quickly integrated to counter asymmetric electronic threats. Significant JEAT efforts include coordinating the largest counter UAV experiment in the DoD (the Black Dart Experiment) and serving as technical coordinator / sponsor for the Trident Spectre exercise, where new technologies of interest to special operations and intelligence community operators are evaluated. JEAT serves as a catalyst often combining several technologies thereby leveraging and increasing the capabilities for today's Warfighter.

Joint Electronic Attack and Compatibility Office (JEACO). JEACO supports the development, analysis, and evaluation of EA systems. EA payloads focus on maximizing EA effects on enemy threats and systems.

Joint EW Effects Laboratory (JEWEL). JEWEL determines compatibility and effectiveness performance of friendly systems consisting of jammers, radios, UAS, as well as other RF equipment. It supports air-to-surface, air-to-air, and surface-to-surface testing. JEWEL uses actual RF hardware and performs HWIL testing. Scenario separation distances are dynamically controlled via attenuators. JEWEL can generate complex electromagnetic background environments (2,500+ signals). In JEWEL, the customer can exercise the system under test at ranges and frequencies not available to flight or open air tests.

High-power Electronic Attack Technique Radiation (HEATR). This is a unique modular, expandable chamber to support high-power modern and legacy jammer development and EW technique evaluation in a closed-loop environment. HEATR can be used for high-power jamming EA technique characterization and development. HEATR is able to capture high-power “whole-pod” radiation levels and is an excellent place to perform transient analysis of beam switching and polarization switching effects. HEATR can be used with ECSEL closed-loop victim radars, AEA ALQ-218 receiver, other EA-18G avionics, and the JEWEL through inter-laboratory connectivity.

Joint Virtual Response Analysis Prototype Integration and Deployment (JV RAPID). The JV RAPID mission is to provide accurate, innovative, and effective solutions with speed, fidelity, and diligence to support immediate operational needs with emphasis on conventional and unconventional RF solutions. It provides analysis and solutions for future operational concerns to the COCOMs. Current capabilities include a 4,300 SF, secure laboratory that includes electromagnetic interference, (EMI) / radio frequency interference (RFI), shield space, and large anechoic chamber.



Radar Reflectivity Laboratory (RRL). RRL operates the indoor RCS test complex for measuring and analyzing far-field monostatic and bistatic RCS and antenna patterns over a wide range of frequencies, aspect angles, and polarizations. The RRL is DoD's premiere indoor RCS test center having far-field measurement capability over the widest frequency range of any test facility in the U.S. Furthermore, it is one of only a few DoD test centers capable of bistatic RCS testing. The RRL is staffed with nationally recognized experts in RCS measurements and analysts who are renowned for inventing high-resolution RCS imagery and many other analysis techniques and algorithms. All facilities are approved for use at the top secret level. For these reasons, the RRL is in high demand by many DoD programs and regarded as a DoD national asset. (See separate RRL facility Quick Facts.)

Sea Range. The Sea Range is the world's largest instrumented over-water range that can be expanded from 36,000 to 220,000 square miles. The Sea Range provides extensive test and training capabilities for the U.S. Navy and allied forces. The range is uniquely situated with a highly instrumented coastline and off-shore islands, full-service military airfields, target and missile launch facilities, data collection and surveillance aircraft, and an experienced staff of technical personnel. The Sea Range is capable of complex, multi-participant, multi-target operations in dense electronic-combat environments with multi-service, multi-national forces. (See separate Sea Range facility Quick Facts.)



Tactical Aircraft (TACAIR) and Aircraft Survivability Equipment (ASE) EW Integrated Product Team. The mission is to enhance Warfighter effectiveness protecting all USN / USMC aircraft to ensure survivability. Specialized suites provide improved survivability through situational awareness, self-protection, and weapon targeting support.

Virtual Missile Range. Provides a synthetic environment and simulates operational ship fire control / radar systems, incoming threats, SeaSparrow missile launch sequences, and fly-outs. This range provides an incoming synthetic threat over and over again for tracking exercises (TrackExs).

EW Firsts

EW Jamming Firsts

- Airborne jammers to counter-improvised explosive devices
- Aircraft communications jamming pod — AN/ALQ-228
- False target jamming technique to counter man-in-the-loop radar tracking — RANRAP
- Reprogrammable self-protection jammer — AN/ALQ-126B
- High-power electronic warfare jammer on the EA-18G — ALQ-99
- Digital multiple false targets jamming for the EA-6B



Electronic Reprogramming Firsts

- Algorithms / protocols allowing net-centric off-board reprogramming / control — CORPORAL
- Field deployable Tactical Electronic Reprogramming, Processing, and Evaluation System — TERPES
- Memory loader using standard PC cards reduces size, weight, and costs by factor of 10 — MLVS
 - Memory Loader Verifier Sets (MLVS) now used by all of naval aviation
- Sea Hawk Eye Electronic Support Library Development — SHEELD