

Directed Energy T&E

NAVAIR operates instrumented ranges on both coasts of the U.S. and provides realistic venues for Directed Energy (DE) testing and training, including full-scale High Power Microwave (HPM) and High-Energy Laser (HEL) events. Large, unencroached areas consisting of land, sea and air space provide a variety of terrain, including desert, mountain, littoral and open-ocean. NAVAIR schedules and controls these operating areas; provides a variety of fixed and mobile range instrumentation assets; and provides air vehicle and weapons systems modification and instrumentation along with the experience needed for risk mitigation involved with high hazard testing. NAVAIR assets include the Sea Range at Point Mugu, Calif.; the Land Ranges and Electronic Combat Range at China Lake, Calif.; and the Atlantic Test Ranges (ATR) at Patuxent River, Md.

EXPERIENCE



REALISTIC ENVIRONMENTS



RESOURCES



FOR MORE INFORMATION

(805) 989-8113
575 I Avenue, Suite I
Point Mugu, CA 93042
www.navair.navy.mil/ranges

Directed Energy T&E

HEL CAPABILITIES & ASSETS

- Airborne Laser, Laser Weapon System (LaWS) and Maritime Laser Demonstration (MLD) testing conducted at the Sea Range; preparations underway for Black Dart testing; Airborne Laser Lab, high-energy laser damage effects, LaWS, and Black Dart testing conducted on the Land Ranges
- Wavelengths permissible at the Sea Range from 180 to 14,000 nanometers, and power levels to 1 megawatt (average)
- Surface-to-surface, surface-to-air, air-to-air, and air-to-surface test/training capability
- Broad range of air, land and sea targets; extensive instrumentation, including from NP-3D Orion aircraft
- Sea Range partnering with NSWC Port Hueneme Division on the Center for Maritime Directed Energy Testing, including support from the NAVSEA Self Defense Test Ship (SDTS)
- SDTS can host laser systems and provide an at-sea, remotely controlled T&E platform
- San Nicolas Island, 60 miles offshore, has a 900-foot altitude and can be used as a test venue and backstop for laser energy to mitigate safety issues
- Port Hueneme provides a deep-water port and is home to surface targets, aerial target recovery boats, vessels to enforce security and safety zones, and SDTS
- Horizontal look-down capability available at the Land Ranges
- Temporary expansion of range areas possible through coordination with local DoD facilities and the Federal Aviation Administration
- Environmental documentation in place at the Land Ranges
- Environmental Assessment (EA) complete for laser operations on the Sea Range; new EA is in progress for HEL testing from the coast of Point Mugu
- Patuxent River Complex Final Environmental Impact Statement in place; expertise to conduct required environmental assessments for testing/training at ATR

HPM CAPABILITIES & ASSETS

- HPM testing capability is currently focused at the Land Range complex, with plans to expand to the maritime environment at the Sea Range
- Active Denial System, Pulsed RF Emitter, and commercial infrastructure RF susceptibility testing conducted, including RF weapons survivability testing for the Office of the Secretary of Defense Live Fire Office
- Realistic land and radio frequency (RF) operating environments
- Remote locations and natural shielding provide minimum spurious electromagnetic interference, without ducting or surface wave propagation conditions, and allows radiation at all frequencies and at very high power levels
- Test venues include commercial infrastructure and other targets of interest as well as other specialized land and airborne targets
- Horizontal look-down capability allows simulated aircraft targeting of ground or sea targets
- Support provided for testing of explosively generated HPM
- Close proximity to Explosive Ordnance Disposal Training Command
- GPS jamming and Radar Cross-Section (RCS) measurements capability
- Environmental documentation in place at the Land Ranges; new EA in progress for HPM testing at the Sea Range
- All ranges extensively networked with other DoD ranges and facilities and commercial entities
- Linked to Electromagnetic Environmental Effects (E3) ground test laboratories, which provide testing for Lightning; Precipitation Static; Electromagnetic Pulse (EMP): HERO, HERF, HERP, EMCON, TEMPEST, COMSEC; and Systems Integration Testing: EMI, EMC
- ATR's Range Operations Control Center provides real-time connectivity to NASA Wallops Flight Facility, FACSFAC VACAPES