Ranges, Roads and Facilities

Test Area 3: Electro-Optical Sensor & Designator Test Range

Test Area 3 is an instrumented test range designed to support sensor/seeker system testing. The range has a cleared area of approximately 5 km in length with an average width of 300 m. The length can be increased to 8 km by combining with Test Area 6 if needed. The perimeter is lined with pine and hardwood trees. The topography is representative of the European environment as target vehicles can be placed in the edge foliage, use the gently rolling terrain features, or use the prepared defilade positions. Dense fog and high humidity, combined with frequent rainfall, give Test Area 3 desirable characteristics for electro-optics tests. The range borders the western boundary of Redstone Army Airfield. This close proximity is valuable since flying time and cost are minimized during captive carry tests. Airspace over the range can be restricted to 30,000 feet. The range has successfully supported FLIR, Missile Guidance Section, Thermal Night Vision Sight, Integrated (multi-imaging) Sight/Seeker, Laser Seeker/Designator, and Unmanned Aerial and Ground Vehicle Tests.

Aerial view of Test Area 3

Captive carry flight test

Creation of smoke screen

Top view of Test Area 3 showing the full 5 km range and the surrounding tree line

In addition to natural masking positions, Test Area 3 is equipped to provide numerous obscurants, depending on the test requirements. Fog oil/dust machines are available to dispense obscurants as required. The obscurant levels can be adjusted to meet test peculiar transmissivity specifications. These machines are equipped for remote operation by RF or hardwire control. Using combinations of natural weather and environmental phenomena, fog oil, dust, flares, fire barrels, white phosphorus, camouflage, tailored heat soaking of targets, and range instrumentation support; Test Area 3 can create Dirty Battlefield conditions for almost any requirement.

White phosphorous obscurant

Fog oil obscurant

Creation of obscurants by tactical vehicles

The range has several "pads" of downrange power, communications, and fiber optic cable "drops". An elevated test site located on the south end of the range can accommodate ten instrumentation vans, is serviced with electrical power, and can be configured with Airborne and Field Sensors Test Branch instrumentation and control vans and/or customer instrumentation.

Aerial of Test Area 3 showing tower

Captive carry flight

Laser designator on OH-58 at elevated test site

A seventy-five-foot tower is located adjacent to the elevated test site and is equipped with range, aircraft, and tactical radios. The 400 square foot two-story command room has patch panels to permit easy interface with the instrumentation and control vans. A second tower, fifty feet in height, is equipped with a 3,000-lb. capacity equipment elevator. This tower is designed to position sensor/seeker, airborne data relay packages, or other test equipment above the range for situations that require such support.

Close up of seventy-five-foot tower

View of seventy-five-foot tower and elevated test site

The Compact Automated Centroid Tracker Instrumentation System (CACTIS), a mobile laser spot scoring system, is available to provide horizontal/vertical laser designator spot position location on stationary or moving targets. For test control, data management and processing; the RAVIN network is also available. Code is written to time match and process the test parameters and data specific to the requirements of each test, and quick look reports may be generated within five minutes of test completion. The network is approved to handle classified data collection and processing. LOCAITS (Low Cost Airborne Instrumentation Tracking System) is available to mount on ground and airborne "players". The system provides the test conductor a real time position for each of multiple players.

Several pieces of specialized test and test support equipment are available. Test Area 3 has several different types of target vehicles, including U.S. and many foreign "threat" vehicles. Mechanics and operators, specifically trained on threat hardware, maintain records of equipment utilization and services. Most personal at Test Area 3 are certified in handling explosives and ordnance. Target characterization, atmospheric transmission data, and spectral radiometry are readily available from the Airborne and Field Sensors Test Branch. On site engineering design and support services and machine shop services are also available

Test Area 3 has been computer modeled producing a "Virtual Range." This range is complete with seasonal

foliage, terrain, buildings, road networks, terrain relief, and infrared overlay data for various combinations of seasons, time of day, and IR signatures. Mapping is available to support computer modeling and simulation of system tests. The Virtual Range terrain database is built on top of a high-resolution grid (geometry) with photographic texture map overlays. The Virtual Range is compatible with standard interface formats including Distributed Interface Network PDUs. Test Area 3 tests can be monitored and controlled in real-time using the 3D test range display. The test can then be played back for post-test evaluation.

Virtual visible scene of Test Area 3

Virtual IR for Test Area 3

Virtual IR model of aircraft

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