Electro Optical Tracking Systems

TRACKING SYSTEMS

The Electro Optical Tracking Systems Section develops, operates, maintains and sustains optical instrumentation at the Atlantic Test Ranges. This instrumentation is used to obtain Time, Space, Position Information (TSPI) data and documentary imaging data on manned and unmanned aircraft, weapon and ship system testing. The section uses fixed and mobile assets in the visible and infrared (IR) spectrums locally, at remote locations and aboard ships. The section also provides precision metrology and geodetic survey services, both locally and at remote locations.

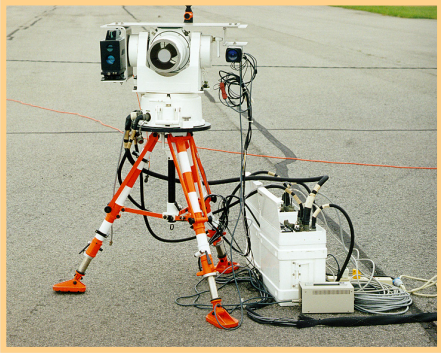
LASER TRACKING SYSTEMS

An Automatic Laser Tracking System provides precision, single-station solution TSPI data from cooperative (retroreflector-fitted) targets. The eye-safe system is located at the intersection of the two Patuxent River runways to cover takeoffs, landings and infield maneuvers and can also provide data in the restricted airspaces around the Hooper Target Complex.

Automatic Laser Tracking System (ALTS)

AUTOMATED IR TRACKING SYSTEM

The MINILIR is a portable, automatic, IR tracking system that provides automatic tracking of IR sources, such as aircraft landing lights and aircraft/weapon system exhaust. This is a stand-alone, portable, tripod-mounted system configured with an eye-safe semiconductor laser ranger to provide precision single-station, solution TSPI data on cooperative targets. Time-tagged video cameras provide documentation of test events.



MINILIR portable automatic tracking system

MINILIR tracking a V-22 aboard the USS *Wasp*

FOR MORE INFORMATION

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Electro Optical Tracking Systems

KTM TRACKING SYSTEMS

The four fixed Contraves Kineto-Tracking Mount (KTM) systems are high-payload, multi-sensor tracking systems. Their visible, IR and high-speed digital imaging systems are configured behind optics with focal lengths from 50 mm to 100 inches, with 200-inch focal length telescopes available for unique test requirements. These mounts collect TSPI data and monitor various payloads mounted on test articles to provide documentary coverage of test events.

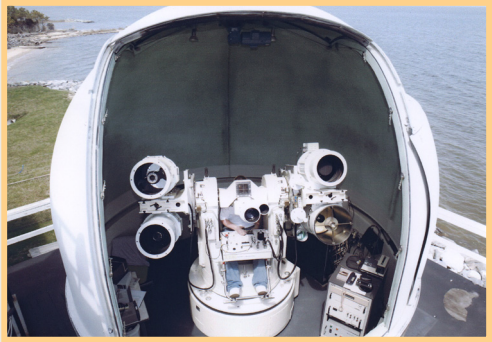
Each system is protected beneath a retractable, slaved, environmental astrodome. KTMs and cinetheodolites are collocated at remote sites along the Chesapeake Bay shoreline for optimum coverage of the Hooper Target Complex and ATR restricted areas. A mobile KTM, configured with various sensors and optics in the visible and IR spectrums, supports test projects requiring optical coverage at remote, off-site locations.

Tracking data (time, azimuth, elevation and site ID) is sent via fiber optic cable to the ATR Range Control Center at a 60 Hz rate. Coverage and resulting data products provide for critical decision making during maneuvers as well as for post-event or flight slow-motion analysis of weapon/store releases, weapon to weapon collisions, weapon impacts and related test events.

CINETHEODOLITE TRACKING SYSTEMS

Contraves model F/C cinetheodolite trackers are used for acquiring TSPI data on non-cooperative aircraft, stores and other targets. Collocated with the four fixed KTMs, the four cinetheodolite instruments are permanently mounted and spaced along a curved portion of the western shoreline of the Chesapeake Bay to provide optimum coverage of ATR-controlled airspace. The instruments are mounted on 25-foot towers and are protected from the environment by slaved, revolving astrodomes.

The cinetheodolite trackers are connected to the Range Control Center via fiber optic cables running along the floor of the Chesapeake Bay. Configured with SDI digital video cameras and computer control systems with video auto-trackers for precision tracking and data collection, they provide precision, post-processed TSPI data on uncooperative targets.



Kineto Tracking Mount (KTM)

Mobile KTM with IR capability

Bay Forest Tracking Station

Chesapeake Station cinetheodolite