

# 746th Test Squadron



## Company Description

The 746th Test Squadron (746 TS) operates the Central Inertial and GPS Test Facility (CIGTF) at Holloman Air Force Base, New Mexico. With more than 50 years of experience, this established test facility provides expert test and evaluation of inertial navigation systems (INS) and components, the Global Positioning System (GPS) and embedded GPS/INS (EGI) navigation and guidance systems, as well as performs trade studies, technical oversight consultation services and analyses regarding GPS platform integration. The 746 TS also manages the tri-service GPS Test Center of Expertise (COE) chartered to support GPS test and evaluation initiatives.

## GPS Vulnerability and Field Testing

With the expanding success of GPS comes the threat of GPS denial by our adversaries. The 746 TS has assembled deployable threat equipment and capabilities to emulate these possible threats along with developing extensive test methods to evaluate GPS equipment against electromagnetic signals. The 746 TS can generate almost any world-wide GPS threat and is uniquely qualified to characterize the navigational operation of any GPS receiver when subjected to such a threat.

## Navigation Test and Evaluation Laboratory (NavTEL)

NavTEL provides an RF sterile laboratory environment with the capability to simulate GPS satellite signals that replicate real-world operations in a controlled, scientific manner. Using proven techniques and state-of-the-art hardware, NavTEL executes tests which simulate complex navigation scenarios. The technical and cost-saving benefits of testing in NavTEL before real-world testing are immeasurable.

## Flight and Field Testing

The 746 TS conducts flight and field testing of inertial, GPS, and integrated navigation and guidance systems in both benign and EW environments. Ground vehicle testing

can determine the operational capability of the test article prior to the more complex, dynamic and expensive flight test environment. Flight testing is performed to characterize and verify test item performance in flight conditions typical of operational aircraft. Available aircraft include the C-12J, AT-38B, UH-1, and others as requested.

## CIGTF Reference System (CRS)

The 746 TS provides a wide variety of Time Space Position Information (TSPI) truth reference systems, configurable to meet customer requirements on test vans, helicopters, and other test bed aircraft. Among our precision reference assets is the CIGTF Reference System (CRS). With 3D position and velocity accuracies as good as 0.35 m and 0.010 m/s respectively, this system is becoming the standard reference system for test and evaluation of DoD's navigation and guidance systems. Rack-mountable and completely mobile, a significant feature of this system is its ability to provide accurate reference data for the test of GPS and/or GPS-aided systems in electronic warfare environments.

## Inertial Testing

The 746 TS tests and evaluates precision inertial components (accelerometers and gyroscopes) and systems used for navigation, guidance and control, as well as pointing and tracking systems. The laboratory features a 53Y three-axis table isolated to the 10's of nano-*g*, as well as a precision centrifuge capability that includes a 120-inch radius arm capable of developing 0.5 to 50 *g* with a *g* stability of better than 1 ppm, worst case.

## Sled Test Capability

The Holloman High Speed Test Track, instrumented by 746 TS personnel, is uniquely applicable to testing guidance and navigation components and subsystems. Sled test programs minimize risks and reduce costs of ownership of newly developed guidance systems and components and provide a means of testing guidance hardware in a near operational environment.



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