



CAST NAVIGATION

Company Overview



Company Vision

Our vision at **CAST Navigation, LLC (CAST)** is to be a twenty-first century company leading the development and growth of the **Global Positioning System (GPS)** and **Inertial Navigation System (INS)** simulation industry. We are committed to creating and supporting systems for simulation, integration, and maintenance that will facilitate and enhance your technology into the future.

The Company

CAST has been in the GPS product and support business since 1981. Recognizing early on the need for expertise to support the expanding GPS receiver business, **CAST** elected to expend its resources in developing GPS receiver test and simulation systems. **NAVSIM**, our initial product, incorporates a comprehensive Monte Carlo Simulation of GPS and **Inertial Measurement Unit (IMU)** integrated navigation systems. It is a robust engineering tool to aid in system configuration selection, system tuning, sensor trade-off analysis, scenario preparation, and performance analysis.

NAVSIM was the catalyst for **CAST's** high-level GPS/INS simulators, including the **CAST-4000**. This product is a simulation/stimulation device that is capable of dynamically testing any GPS receiver employed as part of a space,

aircraft, ground, or seaborne platform. The **CAST-4000** has a complete set of avionic sensors and interfaces capable of testing both loosely and tightly coupled systems. The **CAST-4000** can operate in a closed loop or man-in-the-loop environment.

CAST continued refining and adding to these core products resulting in the development of the **CAST-3000** in partnership with Northrop Grumman and Honeywell.

The **CAST-3000** provides test interfaces to both the Honeywell and Northrop Grumman EGI. The system generates accurate dynamic GPS RF and inertial velocities that are fed into the EGI as if the EGI were on the aircraft. The stimulation approach provides the EGI with the same inputs it would receive on an actual flight. This enables system integration test and evaluation with minimal flight testing.

The capability to perform a full end-to-end test of a platform's **Controlled Radiation Pattern Antenna (CRPA)**, antenna electronics and GPS receiver was made possible by the development of the **CAST-5000 Wavefront Simulator**. It enables high dynamic laboratory testing of GPS devices having multiple antenna elements. Testing is accomplished by creating a coherent wavefront of GPS RF for up to 7 elements with less than 2 centimeters of error between elements.

Another recently developed product is a key component of integration and life cycle support of new munitions. **CAST** systems provide laboratory support for interfacing new munitions to the aircraft avionics suite by emulating flight scenarios for both the aircraft and the guided weapon before and after release. **CAST-3000** simulators are currently being used to support the integration and testing for the **Joint Direct Attack Munitions (JDAM)** for the F-16 and F-22 platforms. Support for **JDAM** as well as other guided munitions is available using either the **CAST-3000** or the **CAST-4000**.

CAST continues building new software products to enhance its baseline systems. An example of that is the **Terrain Obscuration Program (TOP)**. **TOP** is available as an option and provides a real-time determination of satellite visibility based upon the terrain (presented in 3-D visualization) surrounding the position of the GPS receiver.

When combined with a CAST simulator, TOP enables the user to characterize the effects of area terrain on a GPS receiver. TOP obtains terrain data from the **Defense Mapping Agency (DMA)** database. The fidelity of TOP is a function of the **Digital Terrain Elevation Data (DTED)** authorization level of the user.

CAST has developed a family of products that satisfy every user's needs and budget. Our family of low cost, dual frequency GPS simulators complements our high end products described above. The **CAST-1000** was designed to meet the growing demand for portable GPS satellite simulation capabilities. This versatile simulation system is capable of generating a full constellation of GPS with 8 to 12 satellites in view. The CAST-1000 generates **C/A and P codes on L1 and L2**. It has complete scenario generation capabilities and features other superior simulation options and capabilities. The CAST-1000 is designed with the preferred Windows and Lynx operating systems.

CAST also has a tool that supports GPS receiver manufacturing. The **CAST-500** is a GPS signal simulator designed for in-plant receiver testing. It executes predefined tests using one of the three included test scenarios or one created to the user's specifications.

Per our customers' request, CAST developed a product that performs diagnostics on the EGI at your maintenance facility. The **CAST EMT3500-3** provides a total solution for isolating problems reported against the EGI unit as well as providing the capability to install and validate software. A portable version, **CAST 3500-1** EGI Flight Line Tester, is also available for loading and validating EGI software on the flight line. The CAST 3500-1 is **Toughbook** cased allowing it to be vibration, shock, and drop-resistant. It also is resistant to water, dust, and extreme temperatures.

CAST is proud of our extensive list of customers. These customers support most of the current aircraft in the U.S. arsenal as well as those of our allies. We have a long list of supported platforms including the **A-10 Thunderbolt, AV-8B Harrier II, B-1B Lancer, Spirit, EA-6B Prowler, E-2 Hawkeye, E-3 Sentry AWACS, F-35 JSF, F-15 Eagle, F-16 Fighting Falcon, F/A-18 Hornet, F-22 Raptor,**

AH-64A/D Apache, OH-58D Kiowa Warrior, RAF Tornado, Eurofighter Typhoon, UH-60 Blackhawk, CH-47/MH-47E Chinook, SLAM-ER missile, and JDAM smart weapons. Our systems also support other key programs such as range control, **Tomahawk, Trident, ERGM, ANSR, TACMS, Atlas-D, and JPALS.**

These customers, many of whom have used CAST test systems for years, support a wide range of user equipment and have diverse requirements. We provide each of them the support and upgrades needed to continue not only their present mission but also to expand into related fields. This support allows our customers to test the latest receivers integrated in every conceivable platform or device thereby maintaining an edge in a competitive environment.

One of the primary reasons for CAST's ongoing success is our past and present relationships with key companies in the navigation industry. These companies include but are not limited to **Honeywell, Northrop Grumman, and Rockwell Collins.** These relationships, along with a strong commitment to R&D, enable CAST to stay in the forefront of GPS and navigation technology. Our partners provide information crucial to ensuring CAST can provide the test and simulation equipment necessary to validate the next generation of receivers with the next generation satellites.

Our products fully support **SAASM.** CAST has the resources necessary to maintain our position in the GPS test marketplace. We provide test systems that fully simulate the **L2C, L5 and M Code** signals. CAST is committed to support Galileo, Compass and GLONAS in the near future.

CAST will be a major player in the navigation arena well into the future. We are committed to supporting our customers' needs and maintaining a mutually beneficial relationship where CAST can provide the tools to test all types of GPS receivers along with their integration into a myriad of platforms and devices. With years of industry experience, and a strong commitment to integrity, coupled with pride in our products, CAST provides solutions that are unmatched in performance and price.

