



CAST Navigation, LLC
900 Technology Park Drive
Billerica, Massachusetts 01821 USA

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 business. 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 **Honeywell and Northrop Grumman**.



CAST Navigation, LLC, located in Billerica, Massachusetts.

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 for 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 platform. 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)** currently under final test. TOP is available as an option and provides a real time determination of satellite visibility based upon the terrain surrounding the position of the GPS receiver. TOP obtains terrain data from the **Defense Mapping Agency (DMA)** maps database. The fidelity of TOP is a function of the 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** and **CAST-750** were designed to meet the growing demand for portable GPS satellite simulation capabilities. While the **CAST-1000** generates **C/A and P codes**, the **CAST-750** generates **C/A code** only. However, they both have complete scenario generation capabilities and feature other superior simulation capabilities. For those who prefer Windows operational systems, the **CAST-2000** is a Windows-based GPS signal simulator with the same simulation capabilities as the **CAST-1000**.

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.

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. Our systems are being used to support platforms that include the **A-10 Thunderbolt, B-2 Spirit, E-3 Sentry AWACS, F-14 Tomcat, F-15 Eagle, F-16 Fighter Falcon, F/A-18 Hornet, 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 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 relationship with key companies in the navigation industry. These companies include 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** now and will do so in the future. CAST has the resources necessary to maintain our position in the GPS test market place. We will provide test systems that will comply with **L2C, L5 and M Code** requirements when they become available. CAST will support GPS Modernization well before the full impact of these changes is felt in the industry.

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, a strong commitment to integrity coupled with pride in our products, CAST provides solutions that are unmatched in performance and price. ■

Phone: (978) 667-8720
Fax: (978) 670-1883
E-mail: sales@castnav.com
www.castnav.com