

Defense and Homeland Security Brief

infiniDome assures continuous anti-jamming protection for military and law enforcement applications

FULLY INTEGRATED OR A QUICK & EASY INSTALLATION OF THE SMALLEST, LIGHTEST AND MOST AFFORDABLE GPS SOLUTION

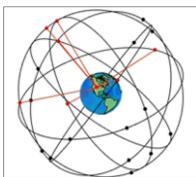


The GPS (Global Positioning System) satellite constellation, originally NAVSTAR GPS, was first authorized for United States Military operations. There it became indispensable for a wide range of DoD activities. These extend from reducing response times for search and rescue, increasing the chances of survival for a wounded soldier to increasing accuracy of weapon systems or complex logistic maneuvers. Through these signals, accurate position, navigation and timing (PNT) is distributed globally. Protecting assets through [assured PNT](#) during interference conditions is critical to Defense, Homeland Security and law enforcement. The precision with which GPS can pinpoint activities enables swift and decisive action. Globally, Defense, Homeland Security and law enforcement agencies are looking for new upgraded and retrofittable technology to ensure accurate GPS.

Signal jamming is a major threat to military and law enforcement actions that are based on GPS GNSS. In Defense, Homeland Security and law enforcement sectors, the demand for GNSS anti-jammers is growing at an unparalleled pace across all platforms — [airborne](#), [naval](#), [ground](#) — manned and unmanned. GPS is considered to be a ubiquitous utility supporting military and law enforcement activities as well as multiple commercial industries such as transportation, communications and financial. Perimeter security, border patrol, police surveillance, convoy protection, aerial imagery and more, all are rendered useless by jammers. Widely available and low priced, GPS jamming devices broadcast signals in the same frequency used by the GPS receivers. Signal disruption by jammers overpower the signals received from satellite GNSS transmissions with “white noise” to cover criminal activities.

infiniDome patented full stack GPS anti-jamming protection and countermeasures technology assures the availability of critical capabilities during deliberate attempts to disrupt GNSS signals. In Defense, Homeland Security and law enforcement usability is an essential consideration. As many applications move towards multi-sensor solutions for timing and navigation – e.g., autonomous ground vehicles, drones, autonomous shipping, aviation systems – C-SWaP (Cost, Size, Weight and Power) efficiencies are arguably the most important specification in new products and systems. GPS jamming, whether intentional or unintentional, is a fairly common occurrence. A European Union study on interference of GNSS signals found evidence of ~500K interference events across 23 countries. Of these interference instances 12% were considered deliberate attempts to disrupt GNSS signals. And, in the United States, NASA’s ARSA (Aviation Safety Reporting System) shows rising interference disruptions. This has resulted in the reliability of GNSS transmissions and the ability to maintain the PNT connection becoming even more important to the fundamental performance of GNSS receivers.

GNSS — Position, Navigation, and Timing



It has become increasingly important that GPS PNT data be both available and reliable. GPS satellites have multiple internal atomic clocks that, in combination, enable very precise and reliable time data. Receivers decode these timing signals, effectively synchronizing their time to the GPS network of atomic clocks that lets time to be determined to within 100 billionth of a second. Multi-sensor positioning systems and precision timing have made sub-

“GPS Jammers Causing Security and Time Problems Worldwide.”

Dr. Brian Blodgett, Homeland Security, American Military University

centimeter positioning and nanosecond-level timing a reality. Jamming attacks have become more commonplace, more dangerous, and more sophisticated. Criminals, terrorists, and other adversaries create havoc and mayhem by jamming GPS and other GNSS signals. Overcoming and ensuring continued operations during jamming disruptions is critical for the Defense, Homeland Security and law enforcement sectors.

infiniDome GPS anti-jamming protection is C-SWaP efficient:

- 30x lower cost
- 15x smaller
- 10x lighter
- <0.75W of power

In military and law enforcement activities the integrity of the GNSS signals is highly critical. Without it, systems and devices of all kinds are sources that can be compromised by GPS interference. [infiniDome's cloud analytics and full stack solutions](#) deliver proven [resilient PNT](#) anti-jamming performance for GPS receivers operating in security focused environments. They deliver real-time interference detection and mitigation while maintaining a receiver's GPS signal

connectivity during a jamming attack. Rejecting RF interference in real-time while protecting GNSS signals ensures continuity of operations.

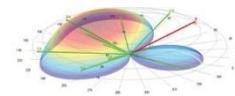
Registered users can track activities through a cloud interface for any GPS interference on a real-time basis. This is made possible by infiniDome's full stack hardware and software solution add-on modules that enhance and protect any GNSS/GPS receiver. For manned or unmanned operations, infiniCloud captures monitoring data about the health of the GNSS signals in addition to providing instantaneous alerts about any interference occurring allowing early detection and immediate response for these situations. When a jamming attack is detected, operators can alert authorities with actionable intelligence for appropriate response to the alert. Being cloud-based, infiniCloud can be readily accessed through popular web browsers and supports FCAPS (Fault, Configuration, Accounting, Performance and Security), the 5 major pillars that define network management monitoring systems.



infiniDome technology provides:

Resilient PNT In a Tiny Form Factor

Allows manned or unmanned military and law enforcement agencies to enhance and protect any GNSS/GPS receiver — whether it be for perimeter security, border patrol, police surveillance, or convoy protection — to monitor, detect and protect against GPS disruptions and gain tangible advantages by getting real-time notifications and reports on all their assets.



Intel Gathering, Monitoring and Early Alert

All infiniDome products offer resilient PNT and through patented technologies that detect, protect and mitigates external interference of GNSS signals. When triggered, an alert is sent via infiniDome's optional CommModule over a cellular data link to the secure infiniCloud monitoring system which is accessible only to registered users. Alternatively, the alert can be configured to be transmitted to both the operator and the operations center.

About infiniDome, Ltd.

infiniDome provides front-end cyber solutions protecting wireless communications from jamming and spoofing attacks. infiniDome's products protect against attacks of GPS-based systems, which are critical for autonomous vehicles, drones, connected fleets, and critical infrastructure. infiniDome's products have been successfully proven in the field and sold to customers globally.

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