

## OtoSphere Market Brief

### Fleet Management & Maritime Jamming Protection

*QUICK & EASY INSTALLATION OR RETROFIT OF THE SMALLEST, LIGHTEST AND MOST AFFORDABLE GPS SOLUTION*



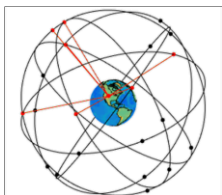
The use of manned and unmanned vehicles in Fleet Management & Maritime is a rapidly growing trend throughout the world. Protecting their GPS receivers from jamming and interference activities is of paramount importance. InfiniDome's OtoSphere is the cyber-protection solution to counteract the effects of GPS jamming attacks and the dangers and losses they cause. The safety of connected, communications-enabled vehicles will change

transportation's future, and with the advancements of OtoSphere — *the future of these industries is now!*

One of the biggest challenges the transportation industry faces is vehicle cyber-attacks. Unprotected GPS receivers are vulnerable to malicious interference as well as unintended interference from things such as military activity, all can cause serious problems for fleet and maritime operators. For the global transportation shipping industry, GPS is a pivotal technology; spotty satellite navigation could be the next disaster waiting to happen. With OtoSphere protecting their assets, Fleet and Maritime operators know they have drastically reduced the risk of being jammed while operating in the field. And, with the add-on CommModule option, all assault data is collected in real-time and sent to our InfiniCloud data center where it is aggregated into a single dashboard for users to login to, exploit and learn from.



## GNSS — Position, Navigation, and Timing



The need for global navigation system (GNSS) position, navigation, and timing (PNT) signals from satellite constellations is growing rapidly in our highly interconnected world. Today's Fleet Management & Maritime operators are dependent on GNSS services. GPS location and timing technology relies on the acquisition of GNSS satellite signals to determine the precise position, location and time of an object. Receivers that support GNSS can use signals from other satellites constellations such as GLONASS, Galileo or

BeiDou. But, they are all based on the same principles: known frequency of extremely weak signals originating from 20,000km above the face of the earth, easily overpowered by off-the-shelf \$50 jammers bought online. Even though a receiver may be equipped with back-up methods like INS, video analysis or a stationary geophysical reference point; GNSS references are still required for position and timing accuracy. Overcoming and ensuring continued operation during jamming disruptions of GNSS signals is critical to fleet and maritime operators. According to FreightWatch, "The effectiveness of jamming technology varies greatly depending on several factors, but jammers have the potential to create challenges with the recovery process when countermeasures are not in place."



Patented anti-jamming technologies set OtoSphere apart as the industry's only commercial GNSS PNT protection solution. OtoSphere delivers proven electromagnetic warfare GPS anti-jamming performance for GPS receivers in harsh fleet and maritime environments. Not only does OtoSphere protect GPS receivers from jamming attacks, it also enables truck and vessel fleet operators to get an instantaneous alert of

when their trucks or vessels are being attacked allowing them to respond in time and prevent damage. These capabilities ensure continuity of navigation and timing signals, an assurance of normal operations during the attack. OtoSphere is a small, affordable add-on module that enhances and protects any GPS receiver. It is secure, lightweight, very affordable and can be configured with all GNSS/GPS receivers interfacing at the RF level.

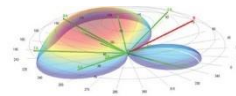
GPS satellites delivers amazingly accurate position and time information. But, these signals are weakened by external noise interferences from other electronic emissions as well as the artificial caverns and valleys of today's modern cities. GNSS reference receivers that are not protected against widely available and inexpensive jamming products are dangerously exposed. infiniDome's patented Phased-Array Anti-Jamming technology protects GPS receivers from jamming and other forms of interference easily and cost-effectively. Now the Fleet Management & Maritime market has an anti-jamming protection solution that is simple to install or retrofit in all GPS receivers.



## *infiniDome technology provides:*

### *Null Steering In a Tiny Form Factor*

OtoSphere's proprietary interference filtering algorithm combines the patterns from two antennas which, in real-time, analyzes where the interference is coming from, then; precisely targets a null in the direction of the attacking RF signals. This is all realized within a tiny module with minimal weight and power consumption.



### *Intel Gathering, Monitoring and Early Alert*

OtoSphere immediately detects and defends against GNSS interferences. When triggered, an alert is transmitted to both the operator and the operations center. When configured with infiniDome's optional CommModule, the attack data is also sent via a cellular data link to the secure infiniCloud data center which is accessible only to registered users.

### *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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