



Adaptive Space-Time Processing

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Background: GPS Anti-Jamming protects GPS receivers from interference and intentional jamming. By the time a GPS signal reaches Earth's surface, it is weak and susceptible to being overcome by higher power Radio Frequency (RF) energy.

Technology Description:

The Air Force Research Laboratory has developed software that is capable of mitigating large numbers of wideband and narrowband interferences, independent of multi-element antenna technology. The invention provides improved anti-jam technology for Global Positioning System (GPS) in a less complex system than previous methods. The invention relies on two-layer processing. The Outer layer with chip-rate processing and adaptive Frost filtering to suppress wideband interference and noise. The Inner layer with Maximin adaptive array processor further nulling narrowband interference and noise while maximizing desired signals.

Market Applications:

- On-Board Diagnostics Devices (OBDs):
 - Electronic Logging Device (ELD) Mandate in North America
 - Driving high demands for OBDs in tracking car's location, emergency help after crash, etc.
- Commercial Vehicles:
 - Largest market size in automation of workflow processes, streamlined operations, etc.
 - GPS tracking devices monitoring trucks, buses, construction vehicles, etc.
- Global GNSS/GPS Receivers:
 - Precision agricultures and aviation
 - Wearable health-care devices, commercial/military satellite communications services, global Long-Term Evolution (LTE) infrastructures and smart phones, smart cities, etc.

Key Advantages:

- Complexity is much less than the current state of the art
- Reduced size
- Reduced weight
- Reduced cost

For information about this technology, please contact Anna Kuuttila from our Tech Engagement Team at: anna@afrlnewmexico.com

