

# NAVY Transition Assistance Program

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N06-T010 - Ionfinity, LLC

Miniature Electronic Sniffer for Navy Vertical Take off Unmanned Aerial Vehicles (VTUAVs)

## NEED & CUSTOMER REQUIREMENT

**Need:** Due to the diverse missions and the limited quantity of P-3 aircraft, the most economical and expeditious way to enhance their operations and assure crew safety is to incorporate the use of small tactical UAVs. The addition of sniffer sensor capability to a small, UAV would provide a vital remote inspection capability said aircraft in addition to the P-8A Poseidon - Multi-Mission Maritime Aircraft.

**Value to the Warfighter:** Currently our sailors board vessels for inspection unaware of the explosive threat. A small UAV would provide a stand-off inspection capability of surface vessels with the ability to detect explosives, chemical agents and some illegal drugs.

**Operational Gap:** Current sniffers have limited capability and are too large and heavy to be mounted on a UAV. The sniffers also lack the sensitivity required to consistently and accurately identify the target substances from a practical range.

**Customer Specifications:** Produce a miniature ~900 grams, field qualified, easy-to-use, battery-operated, non-contact TRL 6 chemical sensor system capable of detecting chemical, explosive, and illegal drug residues in the holds and storage bays of suspect vessels at low ppb (parts-per-billion) levels within 10 seconds. The objective would be to have a weight threshold of just under 5 pounds with the ultimate goal to be under 1.5 pounds.

**Technology Description:** An enhanced Differential Mobility Spectrometer with a micro-GC front-end capable of sub-ppb detection in less than 5 seconds.

## SPONSORSHIP of original SBIR/STTR Topic

**SYSCOM:** NAVAIR

**Transition Target:** Coyote UAV

**Original Sponsoring Program:**  
PMA-264/PMA-290

**TPOC Phone Number:**  
(301) 342-2094

**Note:**  
Original carrier system deemed inappropriate for this application; consequently, new carrier systems are under consideration such as the Coyote.



## TECHNOLOGY DEVELOPMENT MILESTONES (SBIR/STTR)

Milestone	TRL	Risk	Measure of Success	TRL Date
Evaluate and select a non-radioactive soft ionization source	4	Low	Demonstrated capability	03/01/09
Fabricate and demonstrate an initial system	4	Low	Conduct a successful demonstration	05/19/09
Integrate and test deliverable system	4	Low	Field demonstrable deliverable	12/15/09
Field testing of new system	5	Moderate	Acceptable performance in the field	03/01/10
Upgrade system for commercialization	5	Moderate	No major impediments	05/01/10

**Open contract:** N68335-09-C-0050 ending 04/22/2010

## TECHNOLOGY TRANSITION OPPORTUNITIES (PHASE III)

### Other Potential Applications:

Security surveillance and monitoring of ship yards, containers, check points, border crossings, bases, stores, warehouses, vehicles, medical facilities, environment, pollutants and personnel.

### Business Model:

Ionfinity, LLC and it's development partners intend to partner with and license to companies with a demonstrated ability to fabricate, market, distribute and support products in the field of chemical analysis. Ionfinity and it's development partners have over 25 issued and pending patents. In order to achieve the greatest gains it wishes to license a basket of related technologies that simultaneously address issues related to the development and delivery of a low cost, highly efficient, portable instrument for application in the areas of interest trace sample detection, environmental monitoring, medical diagnostics, and industrial process control operating both in air and water based on an approach involving soft ionization and mass analysis.

### Objective:

Ionfinity, LLC and it's development partners are looking for potential commercialization partners with demonstrated ability to fabricate, market, distribute and support mass analyzer and detection system products in the field of chemical analysis.

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