NAVY Transition Assistance Program

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N06-110 - Technology Service Corporation

Advanced Antenna Array Beamformers

NEED & CUSTOMER REQUIREMENT

Need: Low cost repair mechanism to incorrect array patterns and degraded performance in AN/APX-122 antenna for E2-D.

Value to the Warfighter: Accurate identification of friend or foe, safety, expanded battlespace awareness.

Operational Gap: (a) In current NAVAIR E2-D context: IFF antenna pattern corrupted by radome support members; (b) In general waveform applications outside the current NAVAIR E2-D context: Limited waveform repretoir that suffer from poor time sidelobes clutter, spectral interference, predictability, and lack of orthogonality: both adding to severe sensor's performance limitations.

Customer Specifications: (a) Array pattern requirements (directivity, broadening, sidelobes, horizon and other open loop nulls; (b) Waveform requirements: bandwidth, duty, peak gain, time sidelobes, spectral leakage, temporal and spectral notches, orthogonality

Technology Description: Fast local optimization capability algorithm for the IFF antenna pattern. Further capabilities suitable for addressing the above general waveform development issues.

SPONSORSHIP of original SBIR/STTR Topic

SYSCOM: NAVAIR

Transition Target: E-2D

Original Sponsoring Program:
PEO (T) - PMA-231

TPOC Phone Number:
301-342-2637

TECHNOLOGY DEVELOPMENT MILESTONES (SBIR/STTR)

Milestone	TRL	Risk	Measure of Success	TRL Date
Complete Mid, Low, and High band analyses.	3	Low	Acceptable IFF patterns based on measured element patterns.	30 April, 2007
Develop acceptable phase only optimized IFF patterns	4	Low	Patterns validated in a test range.	21 Nov. 2007
Develop acceptable IFF patterns several different array / radome combinations validated in several tests in two different antenna ranges	5	Low	Patterns validated in two test ranges across three different prototype antenna / IFF configurations	March 3 2009
Demonstrate patterns and techniques in two prototype systems on two prototype airplanes.	6	Low	Same but with four arrays and rotodomes with many more tests and with live tests in two separate E2-D prototypes	March 2 2010

Open contract: N68335-08-C-0148 ending March 2, 2010

TECHNOLOGY TRANSITION OPPORTUNITIES (PHASE III)

Other Potential Applications:
Any future radar can use this technique to improve its performance and its resilience in RFI through improved waveforms. Every phased array radar can use the technique to improve its patterns

Business Model:
Licensing, teaming, and subcontracting.

Objective:
We are seeking a prime contractor or government program officer for contracting our services to continue the development or upgrade of radar technologies.

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