Topic: N112-170

Bascom Hunter Technologies

Wideband Radio Local Interference Optimization Techniques
Radio frequency (RF) interference is an issue in wireless communication systems and particularly challenging for satellite communications. Our Quick Universal Interference Elimination Technology (QUIET) allows for rapid removal of in-band interference. QUIET's optic based signal processing system is low cost, compact and backward compatible to legacy systems. Optics based applications include in-band interference cancellation, multiband signal processing, duplexing, filtering, beamformers and phase shifters. Potential applications include anti-jamming for multiband terminals, Mobile User Objective System (MUOS), and electronic warfare sensor programs. The program has carried out extensive wired testing and limited over the air testing by partnering with large military manufacturers to pursue integrated equipment solutions. Bascom Hunter Technologies is an expert in communication and interference solutions. Our goal is to apply QUIET to communication systems to address current and emerging requirements.

Technology Category Alignment:

RF Components for sensing, transmission and communication
Networks and Communications
Cognitive/Adaptive Capabilities
Preemptive/Proactive Effects
Broadband/Multispectral Components and Systems

Contact:
Mr. Brian Fix
fix@bascomhunter.com
(225) 590-35532
http://bascomhunter.com
SYSCOM: NAVWAR
Contract: N00039-15-C-0219
Corporate Brochure: https://navystp.com/vtm/open_file?type=brochure&id=N00039-15-C-0219

Department of the Navy SBIR/STTR Transition Program

Statement A: Approved for public release, distribution is unlimited.
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WHO

SYSCOM: SPAWAR

Sponsoring Program: PMW/A 170 Communications and GPS Navigation Program Office

Transition Target: Navy Multiband Terminal (NMT)

TPOC:
(619)524-7910

Other transition opportunities: *
Navy Wideband Anti-jam Modem System (WAMS)
* Navy Information Distribution Systems
* Army Electronic Warfare and Tactical Radios
* Air Force Protected Anti-jam Tactical Systems

Notes: Problem: Interference disrupts mission critical communications
Solution: Quick Universal Interference Elimination Technology (QUIET) system of Adaptive RF Interference Mitigation

WHAT

Operational Need and Improvement: Interference is one of the major impediments to Satellite Communications (SATCOM). Interference comes from sporadic unregulated radio frequency (RF) transmission such as pirate radio and TV stations or other devices, as well as other sources. When strong interference is inside SATCOM channels, signals may be corrupted so that mission critical communications via satellite are disrupted.Interference can occur in both commercial and military systems. Our warfighter requires assured communications that:
* Remove RF interference caused from sporadic and intentional sources
* Allow simultaneous electronic warfare and communication
* Compatible with legacy equipment and can be easily inserted into field

Specifications Required: RF solutions must meet interference challenges:
* Interference cancellation > 50dB
* Instantaneous channel width > 200MHz of bandwidth protected
* Dynamic range > 80dB
* Backward compatible with legacy RF equipment, ground vehicles and Navy vessels

Technology Developed: Bascom Hunter's novel Quick Universal Interference Elimination Technology (QUIET) satisfies the specified requirements with significant investments to:
* QUIET system architecture incorporates electronic and optical components for optimal performance
* QUIET incorporates advanced signal processing
* QUIET designed for military operating environment

Warfighter Value: Communications and information systems must be connected anytime, anywhere. QUIET delivers:
* Assured communications in anti-access / area-denied environment
* Improved electronic warfare effectiveness
* Additional signal intelligence capabilities
* Compatible with legacy and future systems

WHEN

Contract Number: N00039-15-C-0219 **Ending on:** February 28, 2017

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Harden Design	Low	Demonstrate and advance design to WAMS program field requirements	7	September 2016
Build Prototype	Low	Production Representative Prototype	7	March 2017
Qualification Testing	Med	Performance and environmental specs at Bascom	8	January 2017
System Test	Med	Fielded system performance at Aberdeen Proving Ground	8	September 2017
System Integration	Med	Integrated field testing at Trident Warrior	8	March 2018

HOW

Projected Business Model: We expect to manufacture key components of the QUIET system for delivery to original equipment manufacturers while also developing licensed manufacturing partners for the military, public safety, satellite communication, test equipment and telecommunication markets.

Company Objectives: Seeking manufacturing and licensing partners interested in using QUIET application in their product line for an integrated solution and customers with requirements for an adaptive RF interference mitigation solution.

Potential Commercial Applications: Significant investment and partnership discussions in furtherance of developing commercial applications.
* Multiband Signal Processing
* Duplexing
* Adaptive Filtering
* Beamformers
* Phase Shifters

Contact: Mr. Brian Fix, Program Administrator
fix@bascomhunter.com (225) 590-3553 ext. 2