Department of the Navy SBIR/STTR Transition Program

Pending SYSCOM Review

Topic # N161-049

Joint Tactical Radio System (JTRS) Compliant Anti-Jam Waveform for Littoral Combat Ship (LCS) Unmanned Vehicle Beyond Line of Sight

GIRD Systems, Inc.

WHO

SYSCOM: NAVSEA

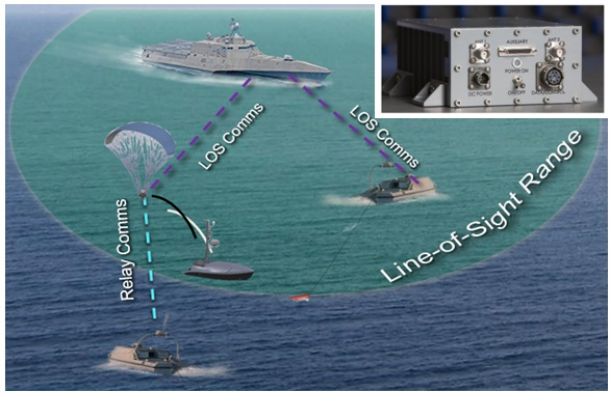
Sponsoring Program: Littoral Combat Ship (LCS) - PMS 420

Transition Target: MVCS Anti-Jam Sensor Networked Data Link (Transceiver) supporting beyond line of sight (BLOS)

TPOC:
(850)230-7015

Other transition opportunities: Platforms requiring high throughput anti-jam communications.

Notes: Anti-Jam Networked High Throughput Data Link



Composite Image Created by GIRD Systems

WHAT

Operational Need and Improvement: A critical aspect to the LCS mission is performing mine sweeping with sensors based on remote vehicle. The sensor data is sent to the LCS platform via a data link which is currently susceptible to jamming. The data link being developed provides exceptional resistance to jamming while maintaining the high throughput required. Furthermore, current system LRUs are a DMS (diminishing material source). This data link absorbs that functionality.

Specifications Required: Polymorphic waveform - self mode adaptation to communications environment. Eight (8) modes: 0 through 7. Throughput (Mbps): 0.05 mode 0 to 36 for mode 7. BLOS Relay Mode: The AJ LOS Radio shall support BLOS communications via a relay node with at least one hop. The relay node shall serve as a slave to the LCS and master to downlink slave radio. Frequency diversity shall provide improved SNR performance as the number of channels are increased.

Technology Developed: Advanced waveform providing high throughput, networked over the air connectivity. Provides communications protection in an electronic warfare environment ensuring reliable data links. In addition, the sensor data link being developed incorporates other LRU functionality thus simplifying the overall system.

Warfighter Value: Sensor data link with advanced anti-jam waveform provides the warfighter with high reliability connectivity to critical sensor data (situational awareness). Additionally, the data link incorporates functions from other LRU's such as the antenna controller (which has gone DMS) thus simplifying the overall system.

WHEN

Contract Number: N68335-20-C-0166 **Ending on:** December 31, 1969

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Kick Off Meeting	N/A	Review with technical and contracts	4	March 2020
Program Progress Report	Low	To include system requirements document	4	May 2020
Project Review and System Design Review	Low	Complete Review answer questions	5	August 2020
Demonstration High Throughput AJ	Med	Show reliable communications link in the presence of jamming	5	August 2020
System Demonstration including BLOS Relay	Med	Network discovery performance	7	March 2021
Phase II Option - Award	Low	Complete Seminal Transition Event (STE)	8	May 2021

HOW

Projected Business Model: The GIRD Systems business model is to maintain design cognizance, to manufacture, test, and deliver the product. As the main component (a software defined radio - GDR) is an existing circuit card assembly that has been sold into other programs the manufacturing ramp up will involve the lower risk aluminum housing and front panel. The quantities required of the program/platform are not that high and will not require retooling. GIRD intends to design, develop, produce and sell the data link.

Company Objectives: GIRD Systems company objective is to continue to expand the proliferation of our GDR software defined radio. It has already been delivered into 3 other programs. This target program does have a higher quantity and a higher profile. GIRD Systems leverages its expertise in advanced waveforms to solve difficult customer problems. We wish to discuss this technology with customers who need high throughput, jam resistant data transfer.

Potential Commercial Applications: GIRD Systems market research indicates that the path to the larger commercial market (especially initially) is best served via a partner that already has significant presence. Discussions are already progressing. This includes excellent timing via the 5G rollout.

Contact: Mark Fischer, Senior Program Manager
mfischer@girdsystems.com 513 477-0214