GENERAL DYNAMICS
Mission Systems

MIMIC

Modular Instrumented MDO Integrated Capability (MIMIC™)

An Affordable Path to More Realistic Testing & Training Environments

MIMIC™ Family of Unattended Passive or Active Nodes

Enables scalable & adaptive threat capability for home station, ranges, & deployed sites

Utilizes common core of COTS software & radio hardware across family of unattended nodes

Rapid deployment & unattended persistent operations

Distributed architecture enabling local and centralized remote control

Communications agnostic to leverage diverse and layered solutions

Overview

The proliferation of advanced technology coupled with rapid advancements in artificial intelligence and machine learning has resulted in an explosion of potential threats to U.S. and allied forces. These challenges are only likely to grow in number and complexity over the coming years.

One area where this threat is the most acute is the capability gap faced by DoD Test & Evaluation (T&E) and Training Ranges. T&E caliber threat solutions are in demand but are limited in number, complex to operate, and expensive to acquire, operate, and maintain. Additionally, the ability to quickly scale threat assets for distributed operations and complex scenarios are limited. However, there is increasing demand for training solutions at Home Stations, Combat Training Centers (CTCs), and deployment ranges worldwide. This demand must confront the reality that range capabilities vary due to location and regional restrictions.

First demonstrated at Vanguard 23 at Ft. Huachuca, MIMIC™ is a family of unattended passive or active nodes designed to "mimic" different adversarial battlefield capabilities enabling U.S. and coalition forces to train more realistically in a Multi-Domain Operations environment. Designed around a core of common components and utilizing affordable COTS software-defined radios and operating software, each node can be configured to represent a different "personality" – e.g., RF Surveillance, HF Emitter, VHF/UHF Emitter, EO/IR Sensor, Radar Signal Simulator. Enabled by 5G/4GLTE, Mesh MIMO, SATCOM or ISM networks and powered by solar panels, long-lasting batteries, generators or shore power, each node can be quickly deployed and controlled remotely and represents an affordable path to creating more realistic training (and test & evaluation) environments.

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Mission Capability

Mission Deployment/Delivery Method

- Vehicle Applique
- **Ground Emplaced**
- **UAS/UAV/UGS/UUV**
- LRPF/Arty/Delivered
- Cyber Network
- Air Dropped
- Man Portable
- Hover Mast
- Balloon
- Vehicle Dropped
- Maritime Float
- Sonobuoy/ Subsurface
- Insurgent Placed

Mission Personality

- **EME/RF Signal Environment Generation**
- **RF Signal Decoy and Spoof**
- RF Denial and Deception
- **EW Module/Localized Jamming (HF)**
- **EO/IR Video Detection/Tracking (Viz)**
- EO/IR Video FLIR & IR Imagery
- LPI/LPD Signals Detection
- Cyber Injection/Techniques
- Simulated Area Denial Munition/Mine
- Laser Ranging and Fire control
- Radar Jamming
- **Radar Emitter Emulation**
- Coherent/Multiplexed Radio Emulation
- Acoustic/Seimic/Magnetic Detection
- Cellular Dection Cyber exploit
- **Spectrum Monitoring**
- Laser Comms Detection
- Laser Ranging Detection
- **MIMO/Comms Extension**
- **DF Station/TDOA/AOA**
- **SATCOM Jamming**
- DRFM/Radar Extension
- LIDAR Region Scan
- **GPS/GNSS Counter A-PNT**
- UAV based SAR/MTI
- SAR MTI Ground Decoys
- Placed IED/Mine/Munition
- IADS C3 Emulation
- Drone Detection Fence
- SAR/MTI decoy

Core Common Modules

- **Processing, Power, Communications, SDRs, Signal Libraries**

- **ISR Forward Deploy**
- ISR Reconstitution
- Home Station Training
- **Radio Direction Finding**
- **Threat Emulation**
- **Decoy Enhancement**
- Counter Maneuver
- **CTCs Unattended MDO**
- Counter APNT
- IADS Comms/Coherency
- CTC's Unattended MDO (Threat)
- **Comms Ad Hoc Extension**
- Homing/Hunter Killer Drone
- **Spectrum Awareness**
- LPI/LPD Signal Qualification
- **UAV/UGS Payload Operations**
- **Radar Emitter**
- **AOA/TDOA Geo-Location**
- Laser Fire Control
- Counter Manuever
- Trash Raft (Floating)
- **Focused/Confined EW**

Bold text *indicates successful prototyping*

MIMIC-Surveillance

MIMIC-EO/IR

MIMIC-HF

MIMIC-VHF/UHF

MIMIC-Radar Signal Simulator

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Sondra.Chambers@gd-ms.com • GDMissionSystems.com
Phone: 407-698-6861

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