

# AEWE 2017

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## Systems Book



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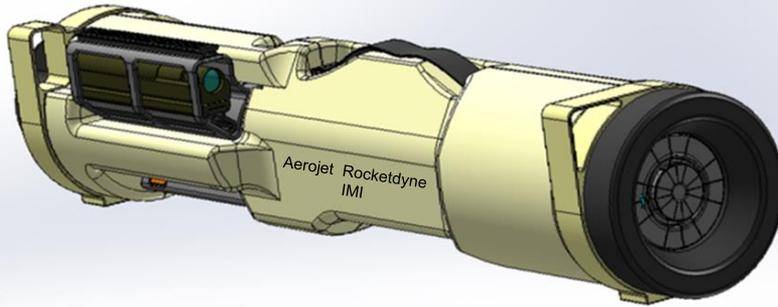
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## Combined Arms Air-Ground Maneuver

### LEAD – MCoE

**Experiment Objective #1:** How do we enable small units to conduct combined arms air-ground maneuver to defeat enemy organizations and accomplish missions in complex operational environments? (AWFC 15)

**Examples:** Soldier Protective Equipment, Soldier Load, Mobile Protected Firepower, Dismounted Lethality, Manned/Unmanned Teaming, Preemptive Threat Detection and Identification, Mission Command on the Move.

**Shoulder Launched Individual Munition****SLIM****TECHNICAL DESCRIPTION**

Weight: 14.9 Lbs

Length: 36 inches Carry & Firing Configuration

Fire from Enclosure

Shoulder Fired Point and Shoot

Concept of Use: Individually Fired Munition

Multi Purpose Warhead:

- Light Armor
- Adobe, Brick & Concrete Structures, Bunkers
- Troops (Airburst Mode)

Engagement Ranges: 15m – 400m

Accuracy: 90% Probability of Hit at 200m

**OPERATIONAL DESCRIPTION**

SLIM is a lightweight, fire from enclosure, individually fired, shoulder launched, ballistic guided, disposable rocket system with a multi-purpose warhead. The system allows:

- Engagement of targets from within structures without hearing or respiratory system damage
- High probability of kill or incapacitation using a single warhead system.
- At 14.9 LBS it lightens the soldier load, increases engagement lethality and flexibility by eliminating the need for multiple specialized rocket systems with single purpose warheads

**CONTACT INFORMATION**

**Aerojet Rocketdyne**

8050 Piney Branch Lane

Bristow, VA 20136

[www.Rocket.Com](http://www.Rocket.Com)

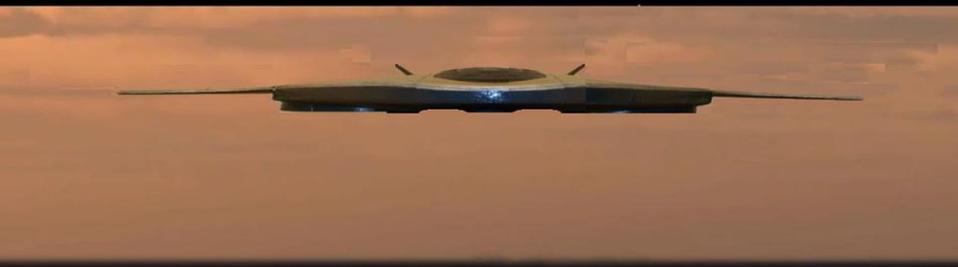
**Technical POC: Mike Keith**

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**Sponsor – MCoE**



AirShip Endurance VTOL UAV  
Clean Tech Propulsion



## TECHNICAL DESCRIPTION

### AirShip Endurance Eagle, Ray and Stinger

- Power: Solar Film and Lithium-Polymer Battery
- Payload(lbs): 1
- Endurance(hrs): 12
- Vehicle Weight(lbs): 2
- Length: 7"x7"
- Ceiling (ft): 2500"
- Speed (mph) : 10
- Radius (1day): Solar only 120 miles
- Production: 3D Printed Carbon Fiber or PS-ABS

## OPERATIONAL DESCRIPTION

### AirShip Stinger

- Back-packable and Wearable to deploy by troops for ISR
- FPV –First Person View navigation
- Day and night electro-optical and infrared sensors
- Small enough to provide ISR over terrestrial locations plus inside buildings and caves
- Radio communications or smart phone command and control
- Low acoustic signature for element of surprise and low detection

## CONTACT INFORMATION

### AirShip Technologies Group

18522 Anduin Terrace  
Lake Oswego, OR 97034

[www.AirShiptg.com](http://www.AirShiptg.com)

**POC: Lisa McCaffrey**

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AirShip Endurance VTOL UAV  
Clean Tech Propulsion

## TECHNICAL DESCRIPTION

### AirShip Endurance Eagle

- Power: Solar Film and Hydrogen Fuel Cell, Lithium-Polymer Battery
- Payload(lbs): V1(3)
- Endurance(hrs): 12-hrs. Solar day/30 mins night, or 53 hrs. 57 mins w/Fuel Cell add
- Vehicle Weight(lbs): 2 lbs(Solar);8.6 lbs. w/Fuel Cell
- Length(ft) : 2.27'x2.27'
- Ceiling(ft) : 4500
- Speed(mph) : 45
- Production: 3D Printed Carbon Fiber or PS-ABS

## OPERATIONAL DESCRIPTION

### AirShip Endurance Eagle

- Vertical take off and landing (VTOL)
- Medium altitude and long endurance (MALE)
- Line of sight and Beyond LOS capabilities
- ISR, communications relay and payload delivery
- TCAS - Traffic Collision Avoidance Systems
- ACAS - Auto-Aircraft Collision Avoidance Systems.
- Flocking (Swarm formation flight with multiple V1's)
- HAIPE IS - Encryption Interoperability Specification
- Operates in air, lands on water, then submerges
- Underwater swimming depths from 5 to 10 feet

## CONTACT INFORMATION

### AirShip Technologies Group

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## TECHNICAL DESCRIPTION

### AirShip Endurance Eagle, Ray and Stinger

- Power: Solar Film and Hydrogen Fuel Cell, Lithium-Polymer Battery
- Payload(lbs): V2 (5.6)
- Endurance(hrs): V2(91.5)
- Vehicle Weight(lbs): V2(4.5)
- Length (ft) : 3.25x3.25
- Ceiling (ft): V2 10,000
- Speed (mph): 65
- Radius (1day): Solar + Fuel cells 360 miles
- Production: 3D Printed Carbon Fiber or PS-ABS

## OPERATIONAL DESCRIPTION

### AirShip Endurance Eagle

- Vertical take off and landing (VTOL)
- Medium altitude and long endurance (MALE)
- Line of sight and Beyond LOS capabilities
- ISR, communications relay and payload delivery
- TCAS - Traffic Collision Avoidance Systems
- ACAS - Auto-Aircraft Collision Avoidance Systems.
- Flocking (Swarm formation flight with multiple V1's)
- HAIPE IS - Encryption Interoperability Specification
- Operates in air, lands on water, then submerges
- Underwater swimming depths to 49 feet

## CONTACT INFORMATION

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### **TECHNICAL DESCRIPTION**

- Air Burst High Explosive ammunition programmed by fire control outside the barrel via IR programmer. The Vingmate Fire Control Unit has been procured for T&E by NSWC, Crane.
- The ammunition has been qualified by the German Army in 2014 and Dutch Army in 2013.
- Successful Live-Fire CDABM Demonstration conducted at NSA (FBGA) on 11 SEP 2014. USG Witnessed. Video available upon request.
- Rounds available for USG Testing and Evaluation.

### **OPERATIONAL DESCRIPTION**

- The System is able to measure the distance to the target and program the HE and HEDP CDABM by infrared beam to detonate at programmed point. (e.g. at, above or behind the target.) NON DUD-PRODUCING
- ABM is programmed once the round exits the weapon creating a more cost effective system (Live fire and training)
- Allows for the engagement of targets in defilade and on roof tops and provides greater suppression than current inventory rounds. More accurate.

### **CONTACT INFORMATION**

#### **American Rheinmetall Munition**

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Stafford, VA 22556

**POC: Mike Brooks**

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**Sponsor - MCoE**



### **TECHNICAL DESCRIPTION**

- The HE ammunition is qualified for use with a number of modern day Multiple Grenade Launchers, including the M32A1 already in use with the USMC.
- Successful demonstration of the Training Practice Cartridge 11 SEP 14 at the NSA range
- The MV HE fragmentation grenade is designed for lethal anti-personnel purposes, at a range more than double that of standard Low Velocity 40mm ammunition.

### **OPERATIONAL DESCRIPTION**

- The maximum range of the grenade is 850 meters, which provides a reach advantage against small arms fire and most shoulder fired weapons.
- The MV Practice Tracer round with tracer effect, is a training and night operations round and is ballistically matched with the other ammunition in the ER portfolio.
- The TP ammunition is inert, with the exception of the tracer compound, and has a maximum application distance of 850m. Must be fired from MILKOR Multi-shot grenade launchers.

### **CONTACT INFORMATION**

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**Sponsor - MCoE**



### **TECHNICAL DESCRIPTION**

- Higher impact speed equals a more reliable impact function, due to higher impulse
  - Arming (19m) and non-arming-distances (11m) remain unchanged from current rounds
  - Gas pressure at cartridge case is 140 Bar (Acceptable for shoulder launched munitions) No damage to weapon
  - Net Explosive Weight (NEW) is 20 grams
  - Projectile weight is 182 grams
  - Recoil energy in Jules is 34.3
- 200 rounds per man per day according to Report No. TOP-3-2-504 Safety Evaluation of Hand and Shoulder Weapons, Table 1 - Firing Limitations for Test Weapons

### **OPERATIONAL DESCRIPTION**

- Increased anti-personnel capability. More fragments than HEDP (M430A1) MAX RANGE: 650 M
- Non-Dud producing – Self destruct fuse after 20 sec.
- Increased velocity equals shorter time of flight thereby increasing accuracy and probability of hit (Soldier in the loop)
- Flatter trajectory equals less time of flight so there is less effect of weather, wind, etc. increasing accuracy and probability of hit (Soldier in the loop)
- Fired from currently fielded 40mm launchers (M320, M203 and MILKOR Multi-launcher)

### **CONTACT INFORMATION**

**American Rheinmetall Munition**  
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**Sponsor - MCoE**



## **TECHNICAL DESCRIPTION**

- The T-20 JUMP is a Tier II/III fixed wing UAV, with unique VTOL capability and endurance
- The T-20 JUMP carries useable multi-int payloads, with high mission endurance (8-16 hrs depending on payloads)
- VTOL capability allows launch and recovery from nearly any location, and eliminates the need for bulky launch and recovery equipment
- VTOL capability is autonomously controlled by the autopilot, reducing training needs for fielded soldiers

## **OPERATIONAL DESCRIPTION**

- Tactical level VTOL Fixed Wing UAV Operations
  - Increase initiate of tactical units with dedicated high-endurance ISR asset employed at the tactical level
  - Increase situational understanding with above Tier1/Group1 tactical UAV
  - High payload capacity for optional payloads to support dynamic reconfiguration for cyber, EW, comms agility
  - Redefine expeditionary nature of tactical UAV employment

## **CONTACT INFORMATION**

### **Arcturus UAV**

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Rohnert Park, CA 94928

[www.arcturus-uav.com](http://www.arcturus-uav.com)

**POC: Philip Mahill**

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## **TECHNICAL DESCRIPTION**

- A Stabilized Weapon Platform in which Fire Control capabilities are directly couple to the mechanical movements of the weapon system. P(hit) increase on stationary and moving targets for individual soldiers firing small arms in all scenarios.
- The barrel and receiver are articulated independently from the shooter-interface components of the system. Separation of the projectile-launching components of the weapon system from the user-interface components is controlled via target tracking software and embedded mobile processing hardware that optically monitor target position relative to point of aim.

## **OPERATIONAL DESCRIPTION**

- Weapon and shooter may be stationary, supported, unsupported, walking, riding on or in a vehicle and can easily be shot from hip, shoulder, around corners and other alternate (normally less effective) positions and means. Use of heads up displays, normal eye in line with optics, goggles and with night sensors. Tagging, marking and interdiction of multiple targets with priorities is part of the package. Firing iterations can execute by command so each time trigger is pulled by shooter, the barrel and fire-control are lined up on each target before the shooter could do this themselves.

## **CONTACT INFORMATION**

**ARDEC**

RADR-EIJ(JSSAP), Bldg. 65  
Picatinny Arsenal, NJ 07806

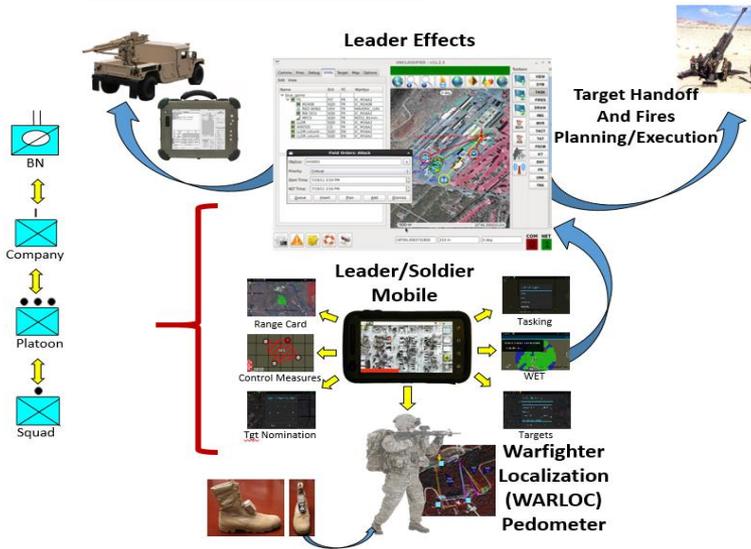
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**Sponsor - MCoE**



## TECHNICAL DESCRIPTION

- Mobile components run on Nett Warrior and/or MAFLA software architectures. Current development is done using surrogate architecture
- Mounted components run on Linux x86 platform
- Accurately localize dismounts in GPS denied areas
- Data will flow from mobile side to mounted side
- Technology will required IP-based network hardware (ex. Radios) and interfaces to communicate with other systems. Currently mobile components are integrated with Nett Warrior net services
- Product supports CoT, JVMF and other Army standard messaging protocols

## OPERATIONAL DESCRIPTION

Provides the small unit leader/soldier role based capabilities that enables the planning, coordination and execution of networked LOS/BLOS effects, supports cooperative engagements, the integration of maneuver and fires, as well as the optimization of effects asset management and execution to include sensor-to-shooter information processing and target hand-off. Capabilities include: Improved weapon placement tool, planning & coordination sharing capabilities between lower and upper echelons such as range cards and sector sketches, control measures, target nominations, strike warnings, taskings, and denied GPS

## CONTACT INFORMATION

**ARDEC**

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Picatinny Arsenal, NJ 07806-5000

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**POC: Ketula Patel**

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## TECHNICAL DESCRIPTION

- Forward-deployed, customizable aerial platform
- Simple PC or app software converts Soldier inputs into a UAS designed around a specific mission
- Small inventory of inexpensive, off-the-shelf electronics enables a wide range of UAS capability
- Rapid manufacturing, potentially in a REF Ex Lab or at CO/BTRY/TRP supply
- Hover capable vehicle easily assembled with basic tools; future plans for fixed wing vehicle
- Unit of issue item that is maintenance free and recoverable, disposable, or attritable
- Easily updated part library to avoid part obsolescence

## OPERATIONAL DESCRIPTION

Demonstrate an ability to rapidly design, manufacture, and deploy a small, Soldier-borne aerial sensor platform based on mission needs in a specific AO using minimal parts.

- Supports small unit decentralized decision making and extends Soldiers' and units' reach
- Custom solution automatically designed at point of need to support mission needs
- Vertical take-off and landing in rugged, austere environments eliminates need for launch equipment
- "Snap-on" of existing/planned mission systems reduces New Equipment Training requirements

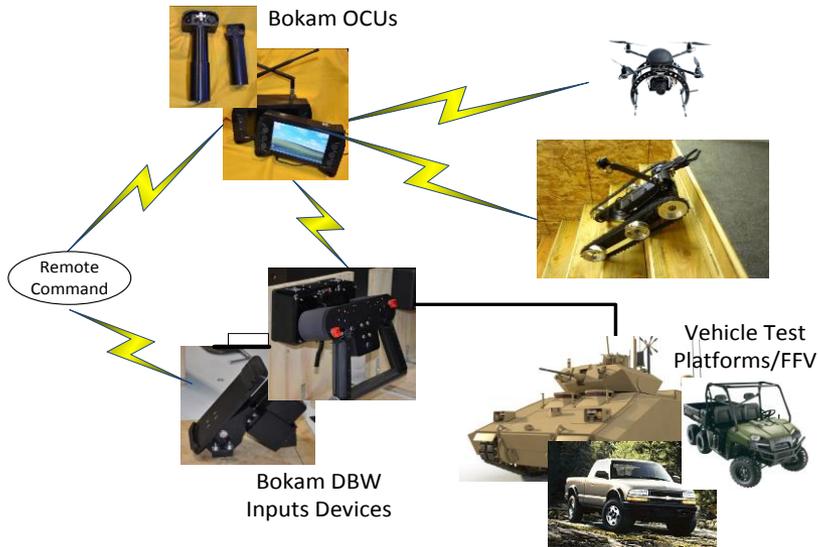
## CONTACT INFORMATION

### Army Research Laboratory

2800 Powder Mill Road  
Adelphi, MD 20783-1138  
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Tel: (410) 278-8743  
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**Sponsor – MCoE/SCoE**



## TECHNICAL DESCRIPTION

- Bokam's DBS controls have been extensively tested in various applications including GDLS GCV ATR and other large vehicles.
- Bokam's standard modular universal OCU were developed for various robotic controls including Advanced EOD Robotic System and Runs government control software MOCU.
- Integration of standard modular universal OCU as a removable part of a driver controls enables the remote operation of vehicles in combination with control of various marsupial robots.

## OPERATIONAL DESCRIPTION

Demonstration of a driver by wire system on a simulated drive by wire vehicle in a mounted and dismounted manner along with control of additional robotic marsupials

Significant Operational Advantages:

- Force multiplication and multiple asset control
- Emergency control of vehicles from safe distance
- Minimizing required hardware and training by allowing multi function/asset control from same control device

## CONTACT INFORMATION

**Bokam Engineering Inc**  
 2720 S. Shannon St  
 Santa Ana, CA 92704  
[www.bokam.com](http://www.bokam.com)

**POC: Jane Kamentser**  
 Tel: (714) 513-2200  
 Email: [jane@bokam.com](mailto:jane@bokam.com)

**Sponsor – MCoE**



## TECHNICAL DESCRIPTION

- The RAILS Pack Frame is compatible with all MOLLE Pouches.
- The Pouches can be Mounted Vertically or Horizontally.
- The RAILS Pack Frame has a Load capacity of 400Lbs.
- The removable Platform can be used to carry additional mission essential items.
- Constructed from Aircraft Aluminum, which is CARC (Chemical Agent Resistant Coating) Coated.
- Reduces weight compared to current MOLLE.

## OPERATIONAL DESCRIPTION

- An integrated pack frame that can be fitted with mission essential gear.
- Can be configured to support all Crew Served Weapons systems (M249, M240, 60mm Mortars and Carl Gustav)
- Rail pack frame can be configure for any mission requirements while maintaining the ability to carry personal items in a two day patrol bag.

## CONTACT INFORMATION

Bulldog Tactical Equipment  
4732 SW, 35<sup>th</sup> Ave  
Ft Lauderdale, FL 33312

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Tel: (706) 536-0418 / (954) 448-5221  
Email: [www.bulldogequipment.us](http://www.bulldogequipment.us)

Sponsor - MCoE

## SFELS (Shoulder Fired Expedient Laser System)



### **TECHNICAL DESCRIPTION**

Aiming laser system for SLM weapons systems. This application will upgrade current SLM weapons to true night time capable platforms. A laser system will be specifically designed for a particular model SLM system and can be used with or without night vision goggles.

Concept proven with currently fielded SFL-100 Aiming Laser for the M72 LAW A7/A9 and M141 BDM in development at TRL 8.

Laser options are visible red and infrared for use with night vision goggles. Class 3R & Class I.

### **OPERATIONAL DESCRIPTION**

Provides the Soldier with a night aiming laser:

- Attach, range, adjust for elevation and fire
- Automatic boresight alignment
- Provides big jump in night time accuracy and quicker engage times
- Quick attachable/detachable
- Easy to train and operate
- Easy to implement to existing TTP
- Low cost
- Used with or without night vision goggles

### **CONTACT INFORMATION**

**Crimson Trace Corp.**

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<https://www.crimsontrace.com/>

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**Sponsor - MCoE**



### **TECHNICAL DESCRIPTION**

- Integrally suppressed upper assembly.
- Optimal suppression in the given 15.7" barrel length.
- Added strength over a conventional barrel/suppressor assemblies.
- Custom barrel rifling for the given barrel length.
- Improved blowback system.
- Design eliminates un-burnt powder explosions.
- Familiar and ergonomic hand guard sizing.
- Incorporates unmatched insulation for your hand and optics with genuine Insulon vacuum tubing.

### **OPERATIONAL DESCRIPTION**

An integrally suppressed upper receiver for M4 / M16.

- A compact package vs. the added length of adding a suppressor.
- Always "ON" when you need it.
- Easy serviceability that extends the life of the suppressor.
- Reduces blowback.
- Integral suppression is quieter than a thread-on suppressor of equal length.
- The SEG solution solves the detonation of un-burnt powder found on other brand design attempts.
- Is cool to the touch for operator comfort.

### **CONTACT INFORMATION**

#### **Federal Resources**

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**Sponsor – MCoE**



## **TECHNICAL DESCRIPTION**

- Premium mono-core baffle in suppressor allows easy cleaning and maintenance, eliminates the need to replace suppressors.
- Titanium suppressor can handle full-auto fire for a limited time before cooling, Stainless can handle full-auto fire for as long or longer than any.
- Baffle design efficiently reduces blowback gassing and bolt speed changes when using a suppressor.
- The fully symmetrical Increases accuracy and a reduces bullet shift.
- Tempered titanium for less muzzle weight and higher heat tolerance.

## **OPERATIONAL DESCRIPTION**

Lighter, Quieter, Serviceable, More Accurate, Less Bullet Shift, More Durable, Less Blowback.

- The first durable Serviceable suppressor that wont need throwing out when dirty.
- The SEG suppressor tested the quietest signature when comparing any manufacturer's can of equal size.
- Less bullet shift when comparing shots with or without suppressors. Faster acquisition and repeatability between guns.
- Eliminates blowback gassing related to suppressor use.

## **CONTACT INFORMATION**

### **Federal Resources**

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**Sponsor – MCoE**



## TECHNICAL DESCRIPTION

- Full expanding
- Solid copper
- Heat treated
- FBI ballistic Gel Tested
- CNC repeatability
- Choreographed quality control
- Premium primers, powders and cases
- Ball, Expanding, and Fragmenting

## OPERATIONAL DESCRIPTION

The first ammunition built for suppressors by suppressor manufacturers for greatly improved ballistics compared to other subsonic ammunition.

- Stealth and good ballistics
- Calibers that don't exist anywhere else
- Expanding subsonic ammunition
- The best long range energy and accuracy
- Cycles in most full-auto configurations
- Great for closed areas; Helicopters, trucks, in buildings, etc.

## CONTACT INFORMATION

### **Federal Resources**

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Stevensville, MD 21666

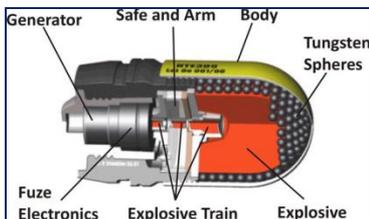
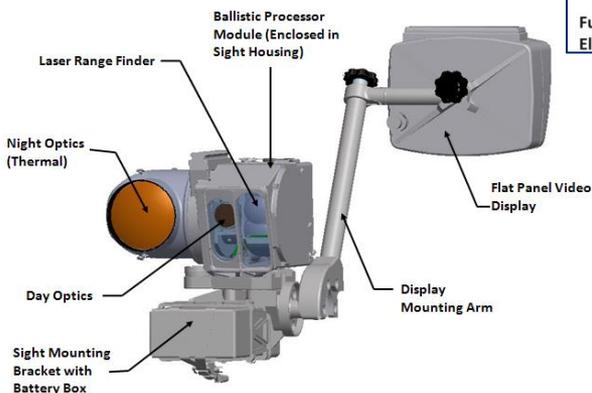
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**Sponsor – MCoE**



### **TECHNICAL DESCRIPTION**

- Full solution Fire Control system for use with 40mm or .50 caliber crew served weapons
- Integrated, high resolution color Day camera
- Integrated 17mm 640x480 uncooled thermal camera
- 3X magnification with 2X Zoom capability (6X)
- Integrated 2600 meter Laser Range Finder
- Airburst programming capability firing 40mm x 53mm High Velocity Air Burst Ammunition
- Programmable, time based fuze with self destruct mechanism
- Programming AB ammunition via Radio Frequency

### **OPERATIONAL DESCRIPTION**

- Fire Control provides the warfighter the ability to detect, recognize, identify and accurately engage targets under both day & night time conditions
- Significantly increases first hit probability
- Reduced ammunition consumption
- Rapid engagement of multiple targets
- Air Bursting ammunition provides greater lethality compared to conventional, point detonating rounds
- Multiple modes of operation - airburst "In Proximity & Near Threat" (2m in front of target), Point Detonation (Impact), Airburst Delay (timed) and "String of Pearls" (3 or 5 Shot Burst)

### **CONTACT INFORMATION**

#### **General Dynamics Ordnance and Tactical Systems**

291 North Street

Saco, ME 04072

[www.gd-ots.com](http://www.gd-ots.com)

**POC: Jeffrey Gramse**

Tel: (207) 217-8756

Email: [jeffrey.gramse@gd-ots.com](mailto:jeffrey.gramse@gd-ots.com)

**Sponsor - MCoE**



### **TECHNICAL DESCRIPTION**

- Cartridge case, primer and propellant are the same as those used in conventional ammunition
- Projectile is two part: jacket is made of conventional gilding metal and core is steel (no lead is used)
- Core has a set of fins in the back of the bullet to gradually add drag and prematurely force projectile out of the sky
- Cartridge is fired out of weapon without any weapon modification. Use is completely transparent to user
- Tracer version available, can trace up to 1,000 m.

### **OPERATIONAL DESCRIPTION**

- .50 caliber Reduced Range (RRA) ammunition provides full projectile energy and ballistic match as conventional M33/M17 ammunition up to 1,000 meters.
- Maximum range of conventional M33/M17 type cartridges is close to 7 km whereas RRA cartridges will not fly further than 3.5 km.
- Operationally this allows users to take down a target at 1 km while limiting overall range to 3.5 km, half of the current M33 round.

### **CONTACT INFORMATION**

**General Dynamics OTS Canada**  
5 Montée des Arsenaux  
Repentigny QC J5Z2P4 Canada  
[www.gd-otscanada.com](http://www.gd-otscanada.com)

**POC: Pierre Lemay**  
Tel: (450) 582-6361  
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**Sponsor - MCoE**

## SWORD Technology

(Soldier Weapon Observer Reconnaissance Devices)



- Rifle Scope Camera
- CNPDS Core (Integrated Power, Data & Navigation)
- Weapon Based C2 Device (Systematic Edge)
- Power/Data Integrated Sling
- Integrated Power & Data Load Carriage Vest
- Radio Interface
- Vest Integrated Power

## **TECHNICAL DESCRIPTION**

SWORD technology is based on commercial/military standards and android applications.

- COTS Android technology for SA/target designation (limited 'smart' scope capability)
- Integrated power, data, and navigations systems
- Integrated scope camera and laser rangefinder
- Compatible with NATO STANAG data and powered rail standards
- Configurable QOS data comms for DIL networks
- Modular components allows multiple configurations, i.e. sniper, scout, etc.

## **OPERATIONAL DESCRIPTION**

Demonstrate the ability to enhance the lethality and survivability at the tactical level by bringing enhanced SA and fire-control capability to the individual Marine/soldier and Weapon via current tactical communications:

- Compatible with current tactical radios for transmission of critical data (or commercial comms)
- Enhances real time information sharing between front line and higher echelon commands
- System can receive or transmit target imagery/ designations, map overlays/annotations
- Transmit rifle parametrics (shot count, barrel temp)

## **CONTACT INFORMATION**

**Headquarters Marine Corps Intel – Intelligence Technologies Division**

27402 MCB-1 (MCIA West)  
Quantico, VA 22134

**POC: Bill Taggart**

Tel: (540) 623-4898

Email: [William.Taggart@mantech.com](mailto:William.Taggart@mantech.com)



## **TECHNICAL DESCRIPTION**

SxV – A lightweight pulse doppler solid state X band radar utilizing high pulse compression ratios to achieve good range discrimination, coupled with multiple doppler filters to enable detection of targets below the clutter threshold based on the doppler signatures. CxEye – Touch screen or pointing device based software controlling radars and cameras. Target classification by the user is a simple process enabling a clear situational awareness picture to be developed. Simple “Track” or “No Track” zones assist in reduction of false alarms.

## **OPERATIONAL DESCRIPTION**

SxV - A light weight all weather 360 degree ground surveillance radar with low level air coverage. Suitable for detecting dismounts, vehicles, low flying aircraft and UAV/UAS. Can be tripod, mast or vehicle mounted. CxEye – A simple user interface to control up to 4 SxV radars and numerous cameras. Enabling a simple C2 system to be set up in a few minutes at a forward operating position. Can be run from small rugged laptops to large command room displays.

## **CONTACT INFORMATION**

**Kelvin Hughes LLC**

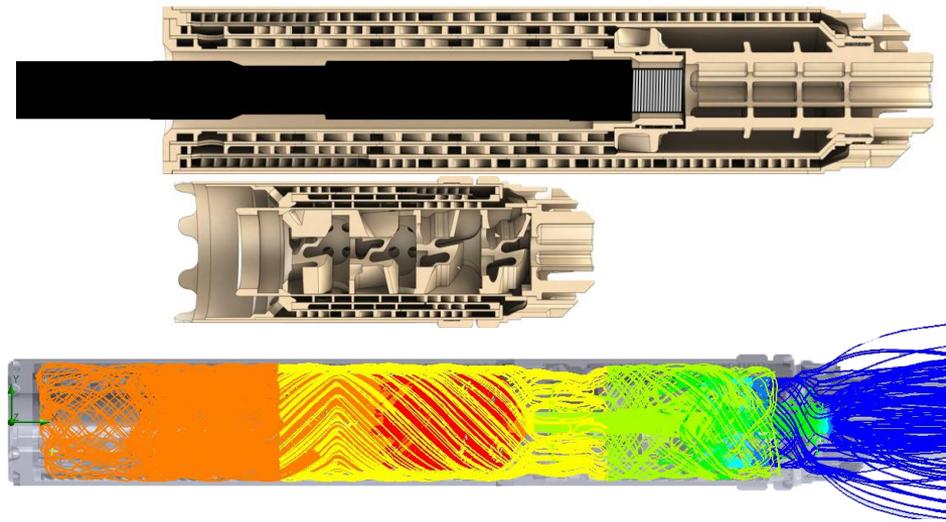
631 South Washington Street  
Alexandria, VA 22314

[www.kelvinhughes.com/security/uav-drone-detection](http://www.kelvinhughes.com/security/uav-drone-detection)

**POC: Adrian Pilbeam**

Tel: (202) 378 8134

Email: [adrian.pilbeam@kelvinhughes.com](mailto:adrian.pilbeam@kelvinhughes.com)



## **TECHNICAL DESCRIPTION**

OSS delivers the next generation of weapon suppression and signature reduction devices. Our multiple patented flow through suppression technology successfully eliminates the adverse and limiting aspects of 100+ year old antiquated baffle type suppressors. OSS devices are specifically engineered to a weapon's operating system, caliber, and barrel length. The function and physics of these variables are the essential basics of every design. The weapon system's performance and reliability will not be sacrificed in order to gain the advantages of suppression.

## **OPERATIONAL DESCRIPTION**

The OSS system maintains the traditional tactical advantages of suppression and eliminates the disadvantages. Our Energy, Particulate Capture and Control Modular Devices are revolutionary, utilizing 12 patented technologies. Additionally, we add modularity, multi-caliber interchangeability including the use of UTM/SIM, M200 Blank Ammo, frangible, and subsonic, replaceable/sustainable internal components, reduced length, increased reduction of sound, flash and heat signatures, and unprecedented recoil reduction

## **CONTACT INFORMATION**

### **OPERATORS SUPPRESSOR SYSTEMS**

280 West Central Ave  
Murray Utah 84107

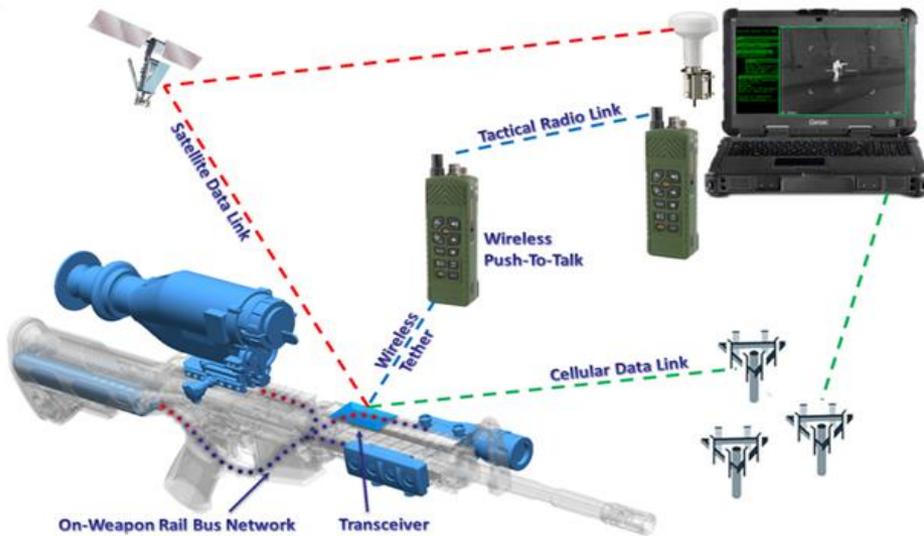
[www.ossuppressors.com](http://www.ossuppressors.com)

**Technical POC: Dennis Cunningham**

Tel: (801) 542-0425

Email: [dc@ossuppressors.com](mailto:dc@ossuppressors.com)

**Sponsor – MCoE**



## **TECHNICAL DESCRIPTION**

A power and data solution for soldier weapons:

- Uses existing Mil-Std 1913 “Picatinny” Rails and compatible with NATO 4694 Rail
- 5 Mb/s data speed today, 25 Mb/s in 2016
- Redundant contact pairs and power sources and supports power sharing/scavenging between devices.
- Accepts 4 to 32 volts power source and supports multiple voltage and amperages simultaneously
- Does not increase handguard weight or size
- Intelligent Rail is TRL 7

## **OPERATIONAL DESCRIPTION**

The Intelligent Rail® provides rugged, secure power and data connection within the Picatinny Rail.

- Retrofit kits for standard Army small arms and accessories - supports modularity
- Nett Warrior and ISA compatible
- Connects weapon-mounted accessories to the network through the Nett Warrior EUD and soldier radio
- Reduces battery logistics tail to one battery for all weapon mounted devices and reduces soldier carry burden
- Addresses AWFCs #1, 14, 15 & 19

## **CONTACT INFORMATION**

**Prototype Productions, Inc.**

21641 Beaumeade Circle, Suite 301

Ashburn, VA 20147

[www.protoprod.com](http://www.protoprod.com)

**POC: Don McLaughlin**

Tel: (571) 220-1532

Email: [dmclaughlin@protoprod.com](mailto:dmclaughlin@protoprod.com)

**Sponsor - MCoE**



## **TECHNICAL DESCRIPTION**

The PD-100 Personal Reconnaissance System (PRS) with the Black Hornet airborne sensor is a Soldier Borne Sensor (SBS) System that provides the Dismounted Soldier with a game changing personal airborne ISR capability.

- Extremely light weight /18 grams sensor
- US DoD specific radio/communication system
- Day/Night Vision live video feed & snapshot
- Advanced Autopilot/ GPS & GPS denied functionality
- Inherently safe

## **OPERATIONAL DESCRIPTION**

The PD-100 is designed as a short range ISR system for lower echelon combat units. The complete system is easily carried by a single soldier on the combat vest, providing the unit with a quick reaction reconnaissance and surveillance capability. The extremely small and light UAVs are inherently safe and poses no risk to personnel or other air vehicles, allowing the system to be operated almost anywhere at any time without prior airspace coordination. It is easy to use and requires only a few hours of training.

## **CONTACT INFORMATION**

**Prox Dynamics USA Inc.**  
4801 A Eisenhower Avenue  
Alexandria, VA 22304  
[www.proxdynamics.com](http://www.proxdynamics.com)

**POC: Arne Skjaerpe**  
Tel: (813) 300 6249  
Email: [arne.skjaerpe@proxdynamics.com](mailto:arne.skjaerpe@proxdynamics.com)

**Sponsor – MCoE/ICoE**



## **TECHNICAL DESCRIPTION**

- The Adjustable Range Impact Munition is based on the design of the Defense Technology 40MM eXact iMPact LE Extended Range Impact Munition
- The unique projectile design (US Patent 8,618,455) incorporates a user-adjustable gas bleed feature to adjust velocity
- Excellent accuracy, flat trajectory, and non-lethal performance at short and long ranges.
- Proven projectile design, materials and high/low pressure smokeless propulsion system.
- Extensive testing to verify extended range performance and non-lethality across the optimal operational range (0 – 70 meters).

## **OPERATIONAL DESCRIPTION**

The existing Adjustable Range Impact Munition is a blunt impact round that can be adjusted between short and long range operation. It is designed for 'direct fire' deployment, from 0m to 40m (Open position), and from 40m to 70m (Closed position).

- Delivers blunt impact and irritant/marketing payloads
- Dispersion within 17in at 100m (see photo)
- 115 ft/lbs. energy at 100m (Closed position).
- Muzzle energy at only 115 ft/lbs (Open position).
- Indexing and positive locking tabs for ease of use.
- NL performance at close range (NIJ 0101.04, 3-Rib Ballistic Impact Dummy, Gelatin Penetration)

## **CONTACT INFORMATION**

### **The Safariland Group**

1855 South Loop  
Casper, WY 82601

[www.safariland.com](http://www.safariland.com)

### **POC: John Kapeles**

Tel: (307) 235-2136 Ex 234

Email: [john.kapeles@safariland.com](mailto:john.kapeles@safariland.com)

**Sponsor – MCoE/MSCoE**

## **TECHNICAL DESCRIPTION**

**NEMESIS Quadcopter** : 30-45 minute flight time. 10 Km range (max), 5 lbs payload, gimballed targeting and surveillance camera system, electro-magnetic pendant for external load delivery and 3D Digital Gyrocompass. Fully autonomous or manual operation. Weaponized option under development.

**Software:** Georeferenced video display on a map overlay. Enhanced video is projected on terrain as a georeferenced/geo-oriented live video stream with real time GPS location of drone, man, or vehicle. Real time share data capability.



## **OPERATIONAL DESCRIPTION**

Demonstrate full Combat Support, SA/ISR drone capability for ground troops, command and control.

System provides:

- Real time tactical information/GPS locations
- Autonomous/manual forward observation capability
- Targeting/enemy position information for air/artillery
- Equipment delivery to deployed troops
- Search and Rescue/beacon locating
- IED support/tool delivery/over-watch
- Engage and assault the enemy (weaponized)
- Virtual tethering, convoy over-watch

## **CONTACT INFORMATION**

**Vision Technologies, Inc.**

700 SE 5<sup>th</sup> Street, Suite 2

Bentonville, AR 72712

[www.visntec.com](http://www.visntec.com)

**POC: Robert Lee Thompson**

Tel: (479)-366-6114 Mobile

Email: [l.thompson@visntec.com](mailto:l.thompson@visntec.com)

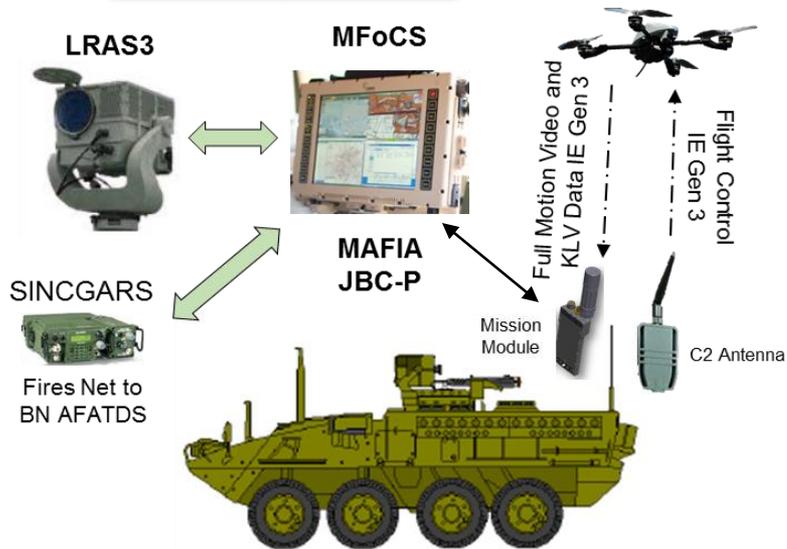
**Sponsor – MCoE/SCoE**

## Enhanced Air-Ground Operations

### LEAD – FCoE

**Experiment Objective #2:** How do we enhance air-ground operations to ensure access, seize the initiative and defeat the enemy in close combat? (AWFC 17 & 18)

**Examples:** Real Time Communications and Deconfliction, Close Air Support, Counter UAS, Digitally Aided Close Combat Attack.



## **TECHNICAL DESCRIPTION**

- 100% Government Owned Software
- Hardware agnostic (future hardware migration)
- Employs the AMRDEC Army Global Engine software - similar to Google Earth Engine
- Applies the AMRDEC Terrain Association algorithm to determine heading and provide User immediate orientation into surrounding terrain.
- Employs NAVAIR unclassified rPFIs (Precision Fires Imagery)
- Exploits SUAS & Soldier Borne Sensor FMV
  - Displays FMV and location cursor on AGE
  - Direct control of the UAS from the MAFIA user interface

## **OPERATIONAL DESCRIPTION**

- MAFIA installed on a Mounted Family of Computer Systems (MFoCS) mounted on a Stryker and integrated with a Long-Range Advanced Scout Surveillance System (LRAS3).
- The MAFIA mounted configuration will provide the Scout / FO the ability to use the LRAS3 to obtain CAT 1 coordinates of a target and send a Call for Fire message through the fires chain to the Battalion AFATDS. The Scout / FO will also have the ability to launch and control a UAS on the move and use the Full Motion Video from the UAS for SA and targeting.

## **CONTACT INFORMATION**

**AMRDEC**

5400 Fowler Road  
Redstone Arsenal, AL

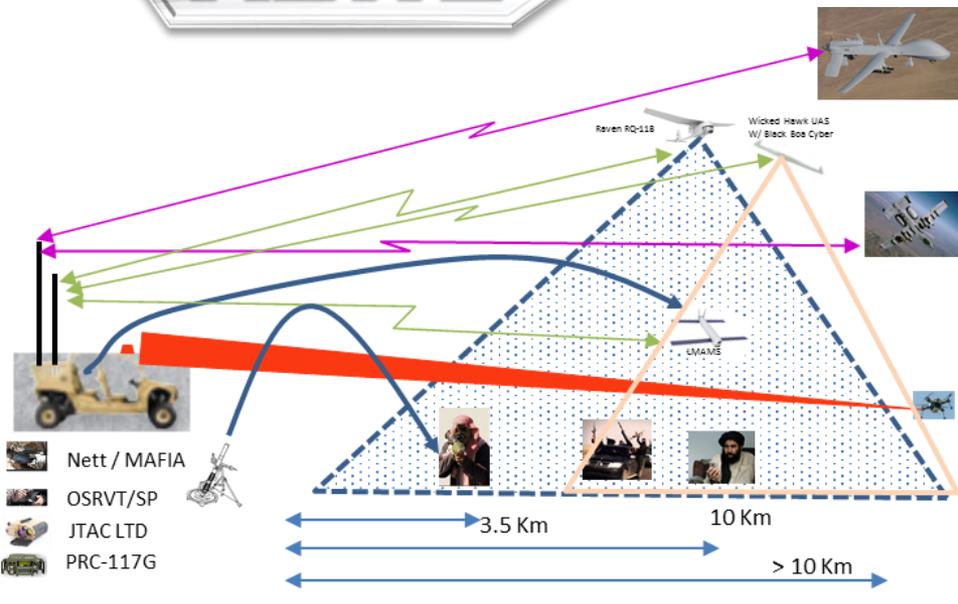
**POC: Jonathan Porter**

PH: 706-545-7287

Cell: 706-580-6339

Email: [jonathan.s.porter.ctr@mail.mil](mailto:jonathan.s.porter.ctr@mail.mil)

**Sponsor - FCoE**



### **TECHNICAL DESCRIPTION**

- Mobile, self-contained compressed kill-chain system
- Hosted on a Polaris MRZR-4 ATV able to drive on/off CH-47 or MV-22
- Integrated Raven RQ-11B UAS
- Integrated Wicked Hawk UAS with Black Boa EW system (Wi-Fi detect, locate, jam) flown at MAWTS
- Integrated Deathstalker hostile C-UAS RF emitter warning sensor with bearing
- Integrated Switchblade LMAMS UAS & M-224 60 mm mortar surface-to-surface fires systems
- Integrated C3: MAFIA/KILSWITCH, 2-Ea PRC-117G (W/SRW), OSRVT, & JTAC-LTD (for CAS C2)

### **OPERATIONAL DESCRIPTION**

Helo-insert 3-5 Km from maneuver force LZ and quickly egress to a hide position with space for Raven and Wicked Hawk UAS flight ops. Provides continuous Raven overwatch of the maneuver force with RT video to MAFIA & driver's map display. Wicked Hawk / Black Boa locates enemy Wi-Fi emitters and cues Raven for location, ID and prosecution. Receives fire mission requests from maneuver force via MAFIA and controls LMAMS, mortar, or CAS as appropriate. Deathstalker alerts on hostile UAS D/L presence to cue LMAMS to CUAS engagement. DRASTIC relocates (operating on the move) to maintain proximity to maneuver force.

### **CONTACT INFORMATION**

#### **Integrated Solutions for Systems**

4970 Corporate Drive, Suite 100

Huntsville, AL 35805

[www.is4s.com](http://www.is4s.com)

**POC: Robert Henderson**

Tel: (256)489-9723

Email: [Robert.henderson@is4s.com](mailto:Robert.henderson@is4s.com)

**Sponsor – FCoE**



### **TECHNICAL DESCRIPTION**

- Compact: 6 x 3 x 2.8 inches (L x W x H) with included 18° lens, Lightweight: < 1 pound, 640 x 512 resolution
- Modular: Interchangeable lens options
- Enduring: > 2 hours continuous operation at room temperature with 2 CR123A batteries
- Low light imaging and detection of NIR pointers, 1.06  $\mu\text{m}$  laser designators and 1.55  $\mu\text{m}$  eye-safe laser rangefinders, pointers and illuminators
- Rugged: MIL-STD-810G compliant, Helmet and weapon mountable, adjustable reticle, digital zoom, media recording

### **OPERATIONAL DESCRIPTION**

The Warrior SPS enables and enhances air-to-ground operations by rapidly and covertly coordinating target location between air and ground forces and provides distinct advantages over other available viewer technologies including visible (CMOS), thermal, and night vision (I2) systems. Battlefield laser aim points (Day/Night) are easily identified, reducing both the time to engage targets, and the risk of fratricide and collateral damage. The Warrior SPS is also capable of imaging through haze, smoke and dust and aids in covert out-of-band SWIR imaging (0.7 to 1.7  $\mu\text{m}$ ), allowing forces to ID, acquire and engage targets faster.

### **CONTACT INFORMATION**

**UTC Aerospace Systems  
Sensors Unlimited**

330 Carter Road, Suite 1  
Princeton, NJ 08540

[www.sensorsinc.com](http://www.sensorsinc.com)

**POC: Ray Bischoff**

Tel: (609) 937-7859

Email: [ray.bischoff@utas.utc.com](mailto:ray.bischoff@utas.utc.com)

**Sponsor – MCoE/PM SWAR**

## Small Unit Expeditionary Sustainment

### LEAD – SCoE

**Experiment Objective #3:** How do we improve small unit sustainment to maintain freedom of action and movement during sustained operations in austere environments? (AWFC 12, 16 & 20)

**Examples:** Autonomous Ground and Air Resupply, Water Demand and Distribution Reduction, Fuel Demand Reduction, Alternate Power Generation.



## **TECHNICAL DESCRIPTION**

- Miniature device that measures amperometric response (electric changes) using a flow immunoassay system. Can detect concentrations as low as 0.5 ng/mL (nanograms per milliliter)
- Operation procedure - continuous flow: pathogen capture, washing, detection
  - Automated analyses of a wide range of analytes: drugs, toxins, hormones, peptides, polypeptides, proteins, whole cells, viruses, bacteria, and specific antibodies
  - 3rd party validation by Sandia National Laboratories

## **OPERATIONAL DESCRIPTION**

Handheld automated device for detection of harmful chemicals and pathogens in water.

- Detects specific analytes (i.e. toxins & bacteria) with unprecedented speed: < 30 minutes.
- Simple operation procedure.
- Only a small sample required.
- Sensor is a small disposable chip.
- Highly accurate, sensitive, and reliable results.
- Device equipped with a number of sensors for detection of different analytes.

## **CONTACT INFORMATION**

**Roving Blue, Inc.**  
 5220 St. Patrick's Road  
 Lena, WI 54139  
[www.rovingblue.com](http://www.rovingblue.com)

**Technical POC: Marianna “Yana” DeMyer**  
 Tel: (920) 621-2163  
 Email: [yanademeyer@gmail.com](mailto:yanademeyer@gmail.com)

**Sponsor – SCoE**



## **TECHNICAL DESCRIPTION**

Five-stage water purification process includes dual debris screen, flushable nanometre filter, silver + activated carbon filter, and ozone generator.

- Weight: < 23 pounds
- Size: L 18.7" x W 14.8" x H 7"
- Power: Any DC (10-30V), or 110-220V AC source
- FDA, EPA, or NSF approved/compliant components
- Made in the USA
- Easy filter changes
- Optional filters for specific problem areas (lead, etc.)

Advanced ozone technology provides highly effective microbiological control in austere conditions.

## **OPERATIONAL DESCRIPTION**

Lightweight, ruggedized, turn-key water purification system designed to produce up to 1 litre/minute (9+ gallons per hour) of drinkable water from surface freshwater sources (200+ gallons per day).

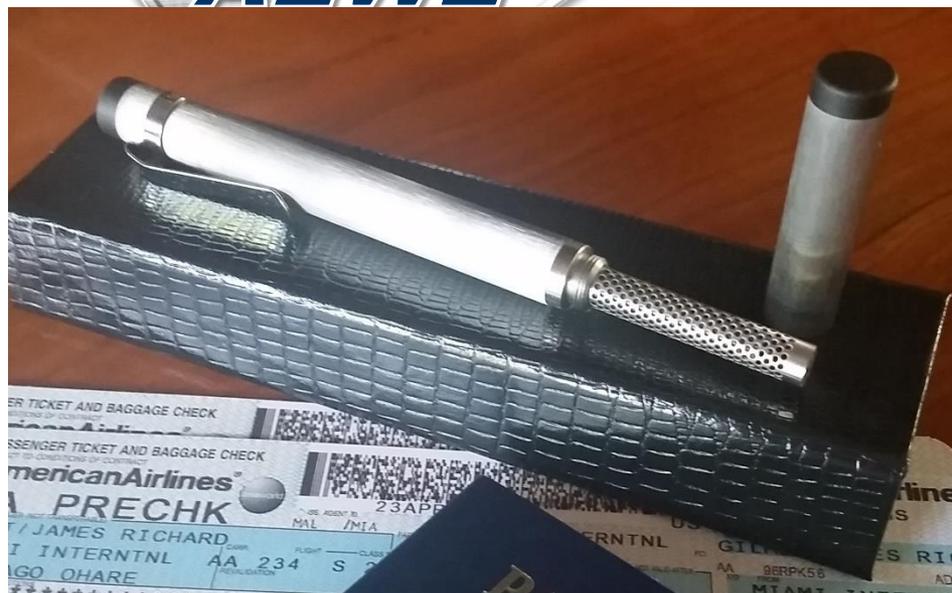
- Significant weight/power reduction of water purification equipment for small military units.
- Additional benefit: Output water carries downstream sanitation capability. It may be used to sanitize food, surfaces, water storage tanks/bladders, medical equipment and *potentially* for wound irrigation.
- No additional chemicals required.
- Quiet operation

## **CONTACT INFORMATION**

**Roving Blue, Inc.**  
5220 St. Patrick's Road  
Lena, WI 54139  
[www.rovingblue.com](http://www.rovingblue.com)

**POC: Marianna "Yana" DeMyer**  
Tel: (920) 621-2163  
Email: [yanademeyer@gmail.com](mailto:yanademeyer@gmail.com)

**Sponsor – SCoE**



## **TECHNICAL DESCRIPTION**

Pen sized pocket water purification device featuring ozone water purification process.

- Weight: 30 grams, or 1.58 ounces
- Size: L 5 3/4" x W .5" x H .5"
- Power: on board rechargeable LI batteries
- FDA, EPA, or NSF approved/compliant components
- Optional disposable filters under development

Advanced ozone technology provides highly effective microbiological control in austere conditions.

## **OPERATIONAL DESCRIPTION**

Lightweight, pocket water purifier designed to purify 250 ml (8 Oz) or 500 ml (16 oz) of water in :30 or :60 seconds.

- Up to 30 uses per charge
- Recharges in 30 minutes via USB
- Superior to UV light systems; ozone does not require filtration to purify water.
- Output water carries capability. It may be used to sanitize bottles, bladders, etc.
- No additional chemicals required.
- Completely silent operation

## **CONTACT INFORMATION**

**Roving Blue, Inc.**  
5220 St. Patrick's Road  
Lena, WI 54139  
[www.rovingblue.com](http://www.rovingblue.com)

**Technical POC: Marianna "Yana" DeMyer**  
Tel: (920) 621-2163  
Email: [yanademeyer@gmail.com](mailto:yanademeyer@gmail.com)



## **TECHNICAL DESCRIPTION**

Open Systems Architecture System for Nett Warrior:

- Software system using openly available architecture
- Hardware system includes:
  - 10 Smart Soldier Role Equipment Connectors
  - Power Control and Distribution Modules
  - Interconnecting Cables

Inductive Seat Charging System:

- Transfer of power between a vehicle seat and the soldier tactical vest
- Connects simply to vehicle power bus using direct connect or NATO plug

## **OPERATIONAL DESCRIPTION**

Demonstrate an ability to rapidly and efficiently connect a large number of frequently changing/ participating systems and platforms in a tactical environment:

- Distributed environment without central servers
- Suitable for low power computing devices and low bandwidth communications for long battery life

Demonstrate an ability to provide cable-less electric power transfer from a vehicle seat to the tactical vest of the soldier sitting in the seat.

- Provide power to the soldier without any cognitive action by the soldier, other than sitting in the seat

## **CONTACT INFORMATION**

**Ultra Electronics**

**Precision Air & Land Systems, Ltd.**

Arle Court, Hatherley Lane, Cheltenham

Gloucestershire GL51 6PN, UK

[www.ultra-pals.com](http://www.ultra-pals.com)

**Technical POC: Tony White**

Director of Advanced Technology

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Mobile: +44 (0) 7850 126717

Email: [Tony.White@ultra-pals.com](mailto:Tony.White@ultra-pals.com)



## **TECHNICAL DESCRIPTION**

Contamination Indicator Decontamination Assurance System (CIDAS), Joint General Purpose Decontaminate-Hardened Military Equipment (JGPD-HME) and Joint Service Equipment Wipe (JSEW).

- CIDAS, a powdered binary enzyme solution that detects, identifies and locates nerve and many NTA agents on surfaces when mixed with water.
- JGPD-HME, a powdered non-corrosive Decon solution that neutralizes traditional and non-traditional chemical and biological agents when mixed with water.
- JSEW, wipe removes gross contamination limiting spread of agent and reducing contact hazard

## **OPERATIONAL DESCRIPTION**

Using equipment pictured above and a 14 step procedure, Soldiers can assess, identify, locate and mitigate contamination of nerve & many Non-Traditional Agents (NTA) agents. This process eliminates external CBRN Units, while enhancing survivability and maintaining unit integrity. The Chemical Self Assessment and Mitigation (C SAM) Bag can decon two combat vehicles and uses 5 gallons of water per vehicle. C SAM Bag includes; CIDAS, JGPD-HME, JSEW and Tyvek suit, gloves and boots for MOPP gear exchange. Time to assess, identify, locate and mitigate contamination on both vehicles is two hours.

## **CONTACT INFORMATION**

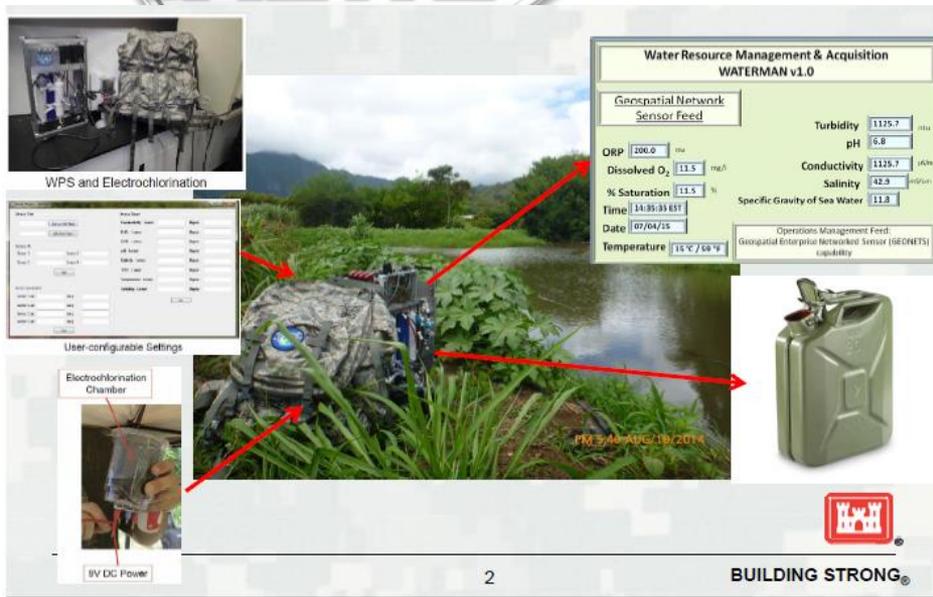
**United States Army CBRN School  
Joint Experimentation and Analysis Division**  
14030 MSCoE Loop  
BLDG 3203, Suite TH2023  
Ft. Leonard Wood, MO 65473-8929  
<http://www.wood.army.mil/newweb/chemical/>

**POC: Joseph Call**  
Tel: (573) 563-7351  
Email: [joseph.e.call4.civ@mail.mil](mailto:joseph.e.call4.civ@mail.mil)

## TECHNICAL DESCRIPTION

Single-person portable toolkit for water assessment and purification that provides the following capabilities:

- Reverse osmosis water purification (1.5 L/min.)
  - Produces up to 50 gal/day
- On-the-fly bleach production from salt and water
- In-line assessment of physical water quality parameters (as defined by TB Med 577)
- On-board mesh network and communications for data logging and relay
- Currently weighs 44 lbs., 12 volt DC pump requires 35 watts continuous power
- Operates 6 to 7 hours on a BB-2590 battery



## OPERATIONAL DESCRIPTION

Demonstrate the ability to produce purified water from a fresh water source, produce bleach from a salt water solution for water sanitization, assess product water for physical water quality parameters, and relay data to the user via wired or wireless protocol.

Allows smaller units to evaluate water sources, produce water as needed, ensure that product water meets physical water quality standards.

Mitigates reliance on bottled water to allow increased unit responsiveness and reduces costs associated with larger scale water production and transport.

## CONTACT INFORMATION

### U.S. Army Corps of Engineers

7701 Telegraph Road  
 Alexandria, Virginia 22315  
[www.erdc.usace.army.mil](http://www.erdc.usace.army.mil)

**POC: Dr. Andmorgan Fisher**

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**Sponsor - SCoE**

V300

veragon



V10AIO



## **TECHNICAL DESCRIPTION**

- Veragon V10 All In One (code:V10AIO)
- Small, portable, MIL STD appliances allowing water production with maximum quality and minimum cost.
- Operational 'bandwidth': 15-45°C / 20-100% RH
- Disinfection achieved by UV-C and micro dosage of chlorine.
- Power consumption (with, for example, local temp. of 30°C) is about 8 kW/h. Noise rating about 64 db
- Unit frame stainless steel AISI 304 (177cm High / 190cm Wide / 219cm Long / 1000 kg when empty).
- Quality water compliance standard: World Health - Organization, FAO - United Nations, Rome 2007

## **OPERATIONAL DESCRIPTION**

- Veragon V10AIO can produce, under optimal conditions, up to 1000 liters of water a day\*.
- This offers a viable alternative to other water supplies (i.e. bottled water, reverse osmosis or desalination systems, boreholes).
- The V10AIO is fully deployable and built to a highly robust specification.
- Fully transportable via C-130, or under-slung, or trailer/flatbed mounted.
- V10AIO is equipped with the V300 treatment unit, which cleans 'fresh' water from wells or other sources to human consumption requirements at 300 litres/hour.

## **CONTACT INFORMATION**

### **Veragon Water Solutions Ltd**

The Old Dairy  
Brewer Street Dairy Business Park,  
Bletchingley,  
Surrey, RH1 4QP, UK.  
[www.veragon.com](http://www.veragon.com)

**POC: Nicholas van Cutsem**

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Email: [vancutsem@veragon.com](mailto:vancutsem@veragon.com)

**Sponsor - SCoE**

## Small Unit Maneuver Support

### LEAD – MSCoE

**Experiment Objective #4:** How can Maneuver Support capabilities further enable the Maneuver Force? (AWFC 5, 12 & 15)

**Examples:** WMD Disruption, Neutralization or Destruction, Gap Crossing (Wet & Dry), Terrain Shaping (Ottawa Accord Compliant), Collection and Analysis of Forensic Data/Material, Production and Analysis of Geospatial Data, Breach or Reduce Complex, Obstacles.



### **TECHNICAL DESCRIPTION**

- 12 Gauge Shotgun High Velocity, High Explosive Cartridge
- The FRAG 12 concept is a niche capability for the Breacher in the unit. The FRAG12 can be used to disable a vehicle at 50-100M by engaging the engine block, disrupting the function of the motor. The FRAG 12 is accurate to a 10 MOA at 100M when fired from a Joint Combat Shotgun with Iron Sights. The use of an Eotech Holographic Sight (or other Visual Augmentation System – VAS) will produce a more accurate MOA.

### **OPERATIONAL DESCRIPTION**

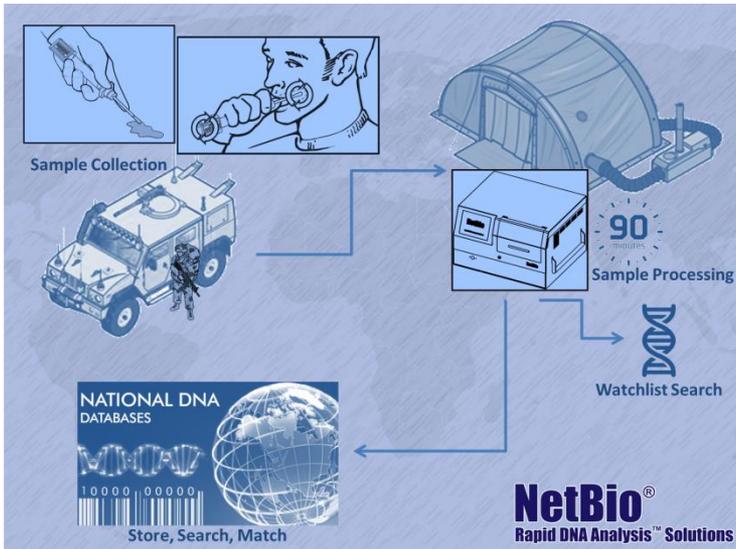
- The FRAG12 HE round is a lethal High Explosive 12 gauge shotgun cartridge that can be deployed against hard targets. The FRAG12 HE can penetrate ¼” Cold Rolled Steel and Level 5 glass at 50 meters and can breach light, medium, heavy wood and metal doors.
- The FRAG12 can be used to disable a vehicle at 50-100M by engaging the engine block, disrupting the function of the motor. The FRAG 12 is accurate to a 10 MOA at 100M. The use of approved Visual Augmentation System – VAS) will produce a more accurate MOA.

### **CONTACT INFORMATION**

**Combined Systems, Inc.**  
388 Kinsman Rd  
Jamestown, PA 16134

**POC: Deac Heilig**  
Tel: (727) 560-9599  
Email: [sptechnology2@aol.com](mailto:sptechnology2@aol.com)

**Sponsor – MCoE**



## **TECHNICAL DESCRIPTION**

Swab-in, profile-out DNA system for human identification.

- Mobile, MIL-STD ruggedized system processes enrolment and forensic DNA samples in as little as 85 minutes.
- Skill level 1 operator technology. Automated sample processing and data analysis.
- Wide range of sample types: buccal, epithelial, saliva, blood, tissue, bone, teeth.
- Data quality and output compatible with DoD and DoJ authoritative databases.
- Global application: Generate 27-loci STR profiles.

## **OPERATIONAL DESCRIPTION**

Field-forward, fully-automated, and integrated Rapid DNA Analysis system provides sample processing in austere environments.

- Minimizes operational footprint and logistics trails allowing DNA sample processing closer to or at the point of collection.
- Connect to authoritative databases in near real time. Organic storage, searching, matching, and watch-listing capabilities.
- Specialized software for kinship matching and mixture deconvolution.

## **CONTACT INFORMATION**

### **Federal Resources**

235G Log Canoe Circle  
Stevensville, MD, 21666  
[www.federalresources.com](http://www.federalresources.com)

### **POC: Scott Graham**

Tel: (770)-570-0943

Email: [scott.graham@federalresources.com](mailto:scott.graham@federalresources.com)

**Sponsor – MSCoE**



### **TECHNICAL DESCRIPTION**

Complete Encapsulation Device for Evidence Collection:

- Total explosive encapsulation device
- Utilizes open celled foam metals to baffle explosive materials in the event of detonation
- Weighs 170 grams making it ideal for dismounted operations.
- Withstands detonation up to 1.5 grams NEW
- Test tubes integrate to device for other materials to include Chemicals, biological samples, etc.

### **OPERATIONAL DESCRIPTION**

Demonstrate the ability of the Compact Containment Device to be a lightweight evidence collection device used to collect explosive compounds, biological, chemical, or other hazardous materials.

- Prevents soldiers from having to carry cumbersome and expensive analysers in the field.
- Allows soldiers to hand over samples to exploitation professionals vice electronic readouts (the preferred method)
- Integrates to MOLLE of the soldier

### **CONTACT INFORMATION**

#### **Federal Resources**

377 Log Canoe Circle  
Stevensville, MD 21666  
[www.FederalResources.com](http://www.FederalResources.com)

#### **POC: Scott Graham**

Tel: (770) 570-0943

Email: [scott.graham@federalresources.com](mailto:scott.graham@federalresources.com)

**Sponsor – MSCoE**

## **TECHNICAL DESCRIPTION**

The SEEKERe combines colorimetric technology with an automated imaging system to reduce human error.

- Detects the explosive families: Nitroaromatics, Nitrate esters and Nitramines, Inorganic Nitrates, Chlorates, and Peroxides.
- Detects the narcotics: Opiates, Meth, Cocaine, THC, Ketamine, Synthetic Cannabinoids, and others
- Ready from a cold start in 25 seconds
- Results in under 60 seconds



## **OPERATIONAL DESCRIPTION**

The SEEKERe permits the operator to rapidly assess and identify bulk and trace amounts of explosives and narcotics. The system requires very little training and utilizes very inexpensive sample cards to collect the sample.

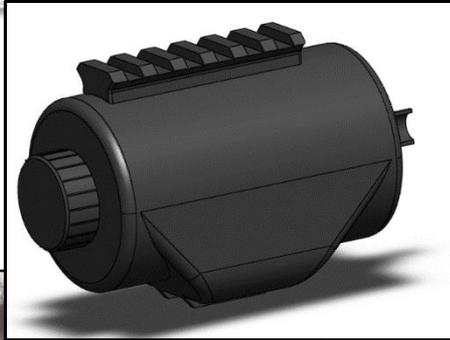
- Real time, accurate results.
- Fills the trace detection capability gap presented by current spectroscopy instruments.
- Automatically records results, GPS location, altitude, temperature, and user info
- No “down time” between samples

## **CONTACT INFORMATION**

**Federal Resources Supply Company**  
235-G Log Canoe Circle  
Stevensville, MD 21666  
[www.federalresources.com](http://www.federalresources.com)

**POC: Scott Graham**  
Tel: (770) 570-0943  
Email: [scott.graham@federalresources.com](mailto:scott.graham@federalresources.com)

**Sponsor – MSCoE**



## **TECHNICAL DESCRIPTION**

Linear Explosive Disruptor: Tool fires a shape charge where the detonation event is contained within a blast chamber thereby allowing the tool to be fired from a robot. Tool is also recoilless making it ideal for remote chemical weapon operations and EOD precision aim.

- dihedral copper liner
- weighs less than 1.5 pounds
- fires 15mm shape charge for burn thru
- integrated blast chamber contains detonation
- barrel provides increased accuracy for high speed disruption of dispersion type WMD devices.

## **OPERATIONAL DESCRIPTION**

Demonstrate the ability of the Linear Explosive Disruptor to strike a component within an IED (configured as a WMD dispersion device). In addition, demonstrate the capability of the tool to be recoilless and mount it to an ROV thereby illustrating the use of the tool for remote CBRNE response operations.

- Integrates to EOD tool kits for enhanced WMD response
- Place on a robot for remote CBRNE operations

## **CONTACT INFORMATION**

### **Federal Resources**

377 Log Canoe Circle  
Stevensville, MD 21666  
[www.FederalResources.com](http://www.FederalResources.com)

### **POC: Scott Graham**

Tel: (770) 570-0943

Email: [scott.graham@federalresources.com](mailto:scott.graham@federalresources.com)

**Sponsor – MSCoE**



## **TECHNICAL DESCRIPTION**

Next Generation Wall Breaching System:

- dihedral copper liner
- penetrates double reinforced rebar
- uses 20 lbs NEW
- total system weight is 49 lbs
- Back packable
- out-performs Army RWBK and may be fitted with future liners to decrease NEW and weight

## **OPERATIONAL DESCRIPTION**

Demonstrate the ability of transporting and assembling the Suprakor and employing the Suprakor for use against a double reinforced rebar wall in order to gain access for assault.

- Uses current military demolition materials
- Back packable
- Ships inert
- Assembles and may be placed on target in seconds

## **CONTACT INFORMATION**

### **Federal Resources**

377 Log Canoe Circle  
Stevensville, MD 21666  
[www.FederalResources.com](http://www.FederalResources.com)

### **POC: Scott Graham**

Tel: (770) 570-0943

Email: [scott.graham@federalresources.com](mailto:scott.graham@federalresources.com)

**Sponsor – MSCoE**



## TECHNICAL DESCRIPTION

The Gemini combines the capabilities of both Raman and FT/IR spectroscopy into one handheld instrument.

- Raman uses a variable power (75-250mw) 785nm laser
- Spectral Range FTIR: 4,000 cm<sup>-1</sup> to 650 cm<sup>-1</sup>
- Raman: 250 cm<sup>-1</sup> to 2875 cm<sup>-1</sup>
- FT/IR features a variable pressure sample crusher
- Powered by an internal rechargeable batter, CR123 batteries or external A/C.
- Reachback assistance available
- MIL-STD 810G certified

## OPERATIONAL DESCRIPTION

The Gemini provides the operator with the rapid analysis of chemicals, explosives, narcotics and hazardous materials via Raman and FT/IR Spectroscopy.

- Real time, accurate results.
- Reduces equipment footprint of EOD and CBRN personnel.
- Fully immersible in water or decon solution
- Extensive Library contains ~14,000 chemicals
- Greatly reduces time on target over other spectroscopy instruments

## CONTACT INFORMATION

### **Federal Resources Supply Company**

235-G Log Canoe Circle

Stevensville, MD 21666

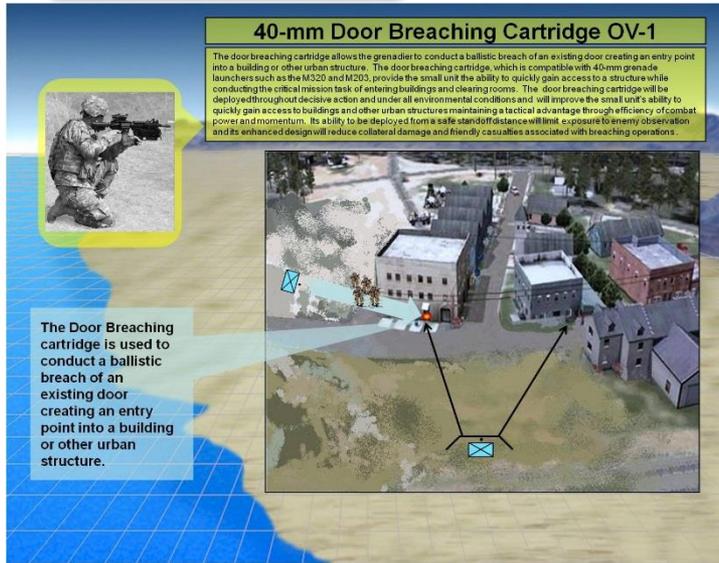
[www.federalresources.com](http://www.federalresources.com)

**POC: Scott Graham**

Tel: (770) 570-0943

Email: [scott.graham@federalresources.com](mailto:scott.graham@federalresources.com)

**Sponsor – MSCoE**



## TECHNICAL DESCRIPTION

40mm Door Breach Cartridge is a 40 x 46mm cartridge with a mechanical PIBD fuze and HE warhead.

Length: 6.24 inches

Weight: 0.55 pounds

Recoil: 20-45 ft-lbs

Minimum Firing Range: 15 meters

Maximum Firing Range: 50 meters

Maximum Firing Angle: 60 degrees

Frag's toward shooter: None

Weapon: M203 and M320

## OPERATIONAL DESCRIPTION

The 40mm Door Breach Cartridge allows the grenadier to conduct a ballistic breach of an existing by creating an entry point into a building or other urban structure.

- Allows small units to quickly gain access to buildings
- Reduces exposure to enemy observation
- Allows for remote ballistic reduction of door without need to have breaching element at entry point
- Increases ability to effectively breach buildings without exposing friendly forces to unnecessary risks

## CONTACT INFORMATION

### PM Maneuver Ammunition Systems

Bldg. 354

Picatinny Arsenal, NJ 07806

[www.pica.army.mil](http://www.pica.army.mil)

**POC: Rich Reed**

Tel: (706) 545-4021

Email: [richard.c.reed28.ctr@mail.mil](mailto:richard.c.reed28.ctr@mail.mil)

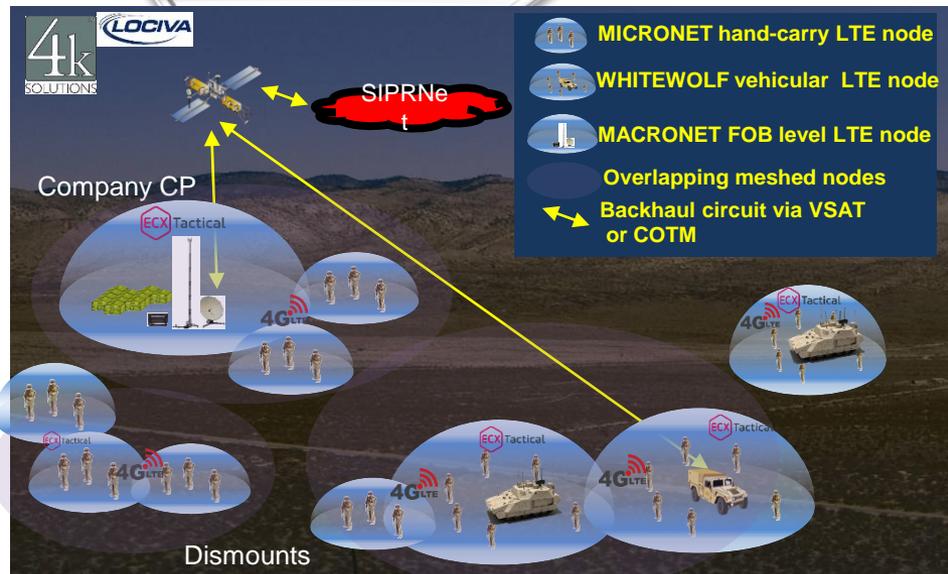
**Sponsor - MCoE**

## Expeditionary Tactical Network

### LEAD – Cyber CoE

**Experiment Objective #5:** How do we engineer the tactical network to maximize bandwidth efficiency, enable dynamic reconfiguration, and improve cybersecurity, while becoming expeditionary? (AWFC 7)

**Examples:** Decreased Network Complexity Without Loss of Range, Simultaneous Use of Multiple Networks on Different Bands, Joint Interoperability Support.



## TECHNICAL DESCRIPTION

Rapidly deployable 4G/LTE

- 64 to 300 simultaneous active packet sessions
- RF Module 2 x 2 MIMO options
- Single Band RF Module (2 x 1W) – Band 17 or 28
- Any other RF Band – Custom Development
- Embedded LTE modems for LTE mesh support
- Small Form Factor
- Low Power Consumption
- Uplink/Downlink throughput 70/30 Mbps, 100/30 Mbps

## OPERATIONAL DESCRIPTION

-Auto-sensing and meshing:

As nodes move into proximity with each other they automatically establish 4G/LTE backhaul links enabling each node to cross-pollinate user databases, and are able to take advantage of any backhaul circuits.

Scalable – man-packable, to vehicular/ISR platform, to FOB level nodes. All working seamlessly and dynamically as nodes move across the battlespace.

-VSAT Backhaul (fixed or COTM)

## CONTACT INFORMATION

**4K Solutions LLC**  
 11255 Rambling Trail  
 Midland GA 31820  
[www.4kSolutions.com](http://www.4kSolutions.com)

**POC: Susan Fillingham**  
 Tel: (910) 303-1787  
 Email: [susan@4ksolutions.com](mailto:susan@4ksolutions.com)

**Sponsor - MCoE**

End User Device



ARMY Supplied Transport Layer



Power



Cables & Connector



Chest Pouch



Capacitive Gear



## TECHNICAL DESCRIPTION

- **Platform:** Android OS smart device (device agnostic)
- **Network Agile** (IP mesh network based capability)
- **GIG (Global Information Grid) Access:**  
NW provides standard VMF messages and leverages existing BFT gateways (JBCP & JCR) to populate SA data on C2 networks.
- **DIACAP (DoD Information Assurance Certification and Accreditation Process):**  
The NW system is accredited to process and store data up to the Secret level.
- **ATO (Authority to Operate):**  
The NW system has a full ATO (v2.0.4)

## OPERATIONAL DESCRIPTION

PdM Ground Soldier focuses on the development of Situational Awareness and Mission Command capabilities for the dismounted leader. Nett Warrior (NW) has the ability to graphically display the location of an individual leader's position, as well as the positions of other NW equipped leaders, on a digital geo-referenced map image. NW is connected through a secure radio capable of sending and receiving data and position location information from one NW to another. NW will increase the leader's Situational Awareness and Command & Control capabilities, while greatly reducing the potential for fratricide.

## CONTACT INFORMATION

### PM Soldier Warrior (PM SWAR)

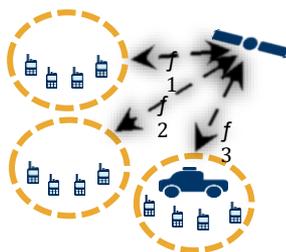
10125 Kingman Rd., Bldg 317  
Fort Belvoir, VA 22060

**POC: MAJ Sheila Howell**

Tel: (703) 704-2010

Email: [sheila.l.howell2.mil@mail.mil](mailto:sheila.l.howell2.mil@mail.mil)

**Sponsor – PM SWAR**



## TECHNICAL DESCRIPTION

- A singular conversion device that connects various waveform UHF TACSAT and VHF military or commercial standard LOS radios.
- The system functions over Inmarsat's I-4 L-Band global satellite network.
- L-TAC affords communications while elements are on the move at 70+ mph in ground, maritime or on airborne platforms.
- The systems is capable of communications with or without encryption.

## OPERATIONAL DESCRIPTION

- L-TAC provides a reliable, secure method of communications for US Forces to utilize various LOS radios as BLOS radios; all while on the move.
- Forces can transmit and receive between stations of deployed elements with various Coalition and Partner Nation forces.
- The capability provides for connected voice and data transmissions.
- Tactical CDR's can expand their C2 footprint across a GCC.

## CONTACT INFORMATION

**TrustComm, Inc.**

800 Corporate Drive, Suite 421  
Stafford, VA 22554

[www.trustcomm.com](http://www.trustcomm.com)

**POC: Pat Gallagher**

Tel: 540-729-0744

Email: [pat.gallagher@trustcomm.com](mailto:pat.gallagher@trustcomm.com)

**Sponsor – CCoE**



## **TECHNICAL DESCRIPTION**

- LoS and BLoS IP Networking for VHF/UHF/HF radios
- Small rugged portable MIL-STD device that IP enables legacy tactical radios, including SINCGARS
  - Error-Free Message Delivery
  - Automatic re-transmission protocol closes the link
  - Adaptive Forward Error Correction
  - Real-Time Message Compression
  - Simple set and forget configuration
  - Available for Windows, Linux and Android OS
  - USB interface to NETT Warrior
  - Combat proven technology for 20+ years

## **OPERATIONAL DESCRIPTION**

Demonstrate the ability to seamlessly enable Nett Warrior EUD to interface with legacy SINCGARS tactical radios to provide IP network coverage area for Air, Vehicular and Ground Dismounted Operations

- Maps (Add Map Item)
- Place Sensor
- Plot Chemlights
- Plot GRG
- Plot IED
- Plot SAG
- Free Text
- Message Center

## **CONTACT INFORMATION**

**ViaSat Inc.**

6155 El Camino Real  
Carlsbad, CA 92009

<https://www.viasat.com>

**POC: Marty Conrad**

Tel: (760) 522-4482

[Email: marty.conrad@viasat.com](mailto:marty.conrad@viasat.com)

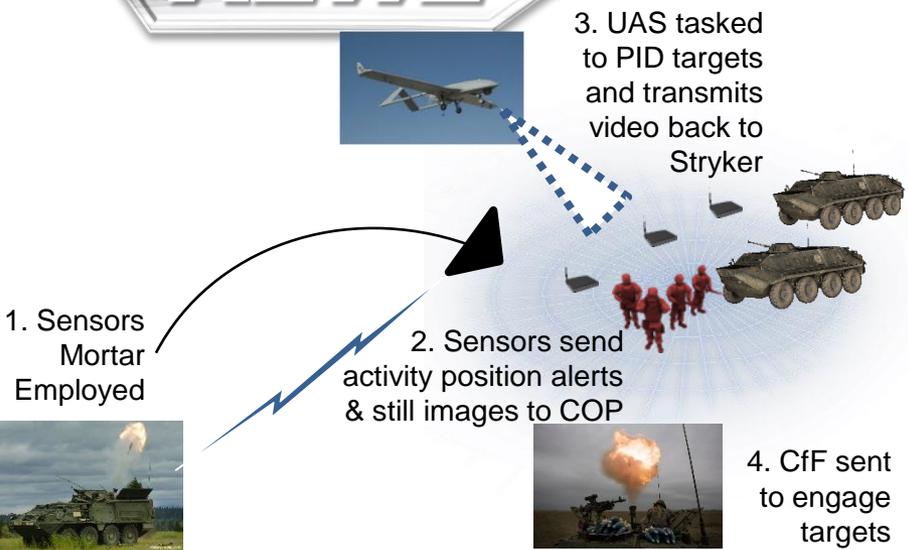
**Sponsor – CCoE**

## Situational Understanding

### LEAD –ICoE

**Experiment Objective #6:** How do we develop and sustain a high degree of situational understanding while operating in complex environments against determined, adaptive enemy organizations? (AWFC 1)

**Examples:** Operations/Intelligence Convergence, Sensor Computing Environment (Sensor CE), Distributed PED and Analysis, Extend and Evolve the Intelligence Enterprise.



Integrated Sensors aid Fires to Shape Enemy Movements!

## **TECHNICAL DESCRIPTION**

- MD-UGS is designed for deployment by organic mortar tubes. They collect and fuse target signatures into high-confidence target discrimination, location, and tracking reports
- Modular, plug-n-play technologies designed to maximize target discrimination.
- Multi-modality fusion algorithms refine reportable target activity. Supporting imaging sensors confirm activity and location of target.
- Sensor data Integrates and disseminates into vehicles' FBCB2

## **OPERATIONAL DESCRIPTION**

- Develop Mortar-Deployed UGS for detection and discrimination of enemy dismounts & vehicle formations
- Unmanned Ground and UAS Sensor reports integrated with CfF messages enable rapid enemy engagement with indirect fires.
- Geolocate threats, retreating / reinforcing activity and routes
- Improve mobility through threat risk identification.

## **CONTACT INFORMATION**

U.S Army Research Laboratory<sup>1</sup>

(CERDEC, ARDEC, PM UAS)

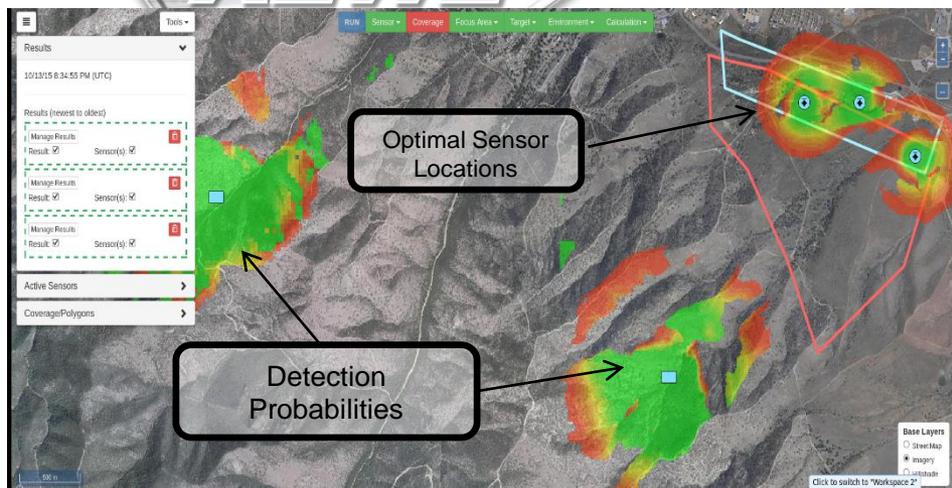
12800 Powder Mill Rd  
Adelphi, MD 20783

**POC: Jeffrey Houser**

Tel: (301) 394-0797

Email: [jeffrey.g.houser.civ@mail.mil](mailto:jeffrey.g.houser.civ@mail.mil)

**Sponsor – ICoE**



## TECHNICAL DESCRIPTION

### Environmental Awareness for Sensor and Emitter Employment (EASEE) Web Service (EWS)

- Provides high-fidelity, weather and terrain impacted, human audibility, sensor performance, and optimal sensor placement planning capabilities using enterprise service architecture.
- Data products can be accessed using a dedicated Web UI or 3rd parties using web service protocols.
- Leverages open-source Geographic Information System (GIS) software to ingest terrain data from any Open Geospatial Consortium (OGC)-compliant web service provider and publish products.



## OPERATIONAL DESCRIPTION

Operator uses EWS Web UI from any web browser (desktop or mobile) to:

- Configure tactical scenarios
- Request sensor performance, vulnerability and placement results from the service

WebUI employs:

- Imagery via Web Mapping Service (WMS)
- Terrain via Web Coverage Service (WCS)

WMS/WCS data services can be provided by:

- Local (1st Party) Geoserver instance
- Shared (Enterprise) OGC-compliant server

## CONTACT INFORMATION

**Atmospheric and Environmental Research, Inc.**

131 Hartwell Avenue  
Lexington, MA 02421

[www.aer.com](http://www.aer.com)

**Technical POC: Christian Borden**

Tel: (781) 761-2295

Email: [cborden@ aer.com](mailto:cborden@ aer.com)

**Sponsor – ICoE**

# Other



## TECHNICAL DESCRIPTION

- Weapons Effects Simulator
- Five effects on a circuit board of 4in by 4in
- Produces a flash and 140db bang
- Can fire single shots, burst fire or simultaneous fire
- Electronically initiated wirelessly or manually
- Hazard Class 1.4G
- Unit can be powered through battery or hardwired source
- MILES compatible

## OPERATIONAL DESCRIPTION

Macropyro is a system used to simulate fire in MOUT areas. It is a one man setup that is easy to reload. Unit is fired through a wireless PDA or other manual means. Effect produced is a flash bang with a smoke cloud

Used to simulate:

- Booby traps
- Hostile fire
- IED simulation
- Gun fire

## CONTACT INFORMATION

**ARDEC**

Building 3124  
Picatinny, NJ 07806

[Pica.army.mil](http://Pica.army.mil)

**POC: Mark Kuperus**

Tel: (973) 724-4569

Email: [charles.m.Kuperus.civ@mail.mil](mailto:charles.m.Kuperus.civ@mail.mil)

**Sponsor – MCoE**



## TECHNICAL DESCRIPTION

- Indoor Weapons Effects Simulator
- Eleven effects on a circuit board of 107mm by 50mm
- Produces a flash and 140db bang
- Can fire single shots, burst fire or simultaneous fire
- Electronically initiated wirelessly or manually
- Hazard Class 1.4G
- Unit can be powered through battery or hardwired source
- MILES compatible

## OPERATIONAL DESCRIPTION

Micropyro is a system used to simulate fire indoors. It is a one man setup that is easy to reload. Unit is fired through a wireless PDA or other manual means. Effect produced is a flash bang with a little smoke.

Used to simulate:

- Booby traps
- Close proximity indoor effects
- Gun fire

## CONTACT INFORMATION

**ARDEC**

Building 3124  
Picatinny, NJ 07806

[Pica.army.mil](http://Pica.army.mil)

**POC: Mark Kuperus**

Tel: (973) 724-4569

Email: [charles.m.Kuperus.civ@mail.mil](mailto:charles.m.Kuperus.civ@mail.mil)

**Sponsor – MCoE**

### **TECHNICAL DESCRIPTION**

- NSN: 1370-01-604-6463
- DODIC: LA71
- IHC: 1.4g
- Environmentally benign



### **OPERATIONAL DESCRIPTION**

The XM175 Replicates the black smoke from a target kill.

- Visible up to 1800 meters
- Smoke cloud production duration approximately 20 seconds
- Fired from Omega and BESII launchers

### **CONTACT INFORMATION**

**ARDEC**

Building 3124  
Picatinny, NJ 07806  
[Pica.army.mil](http://Pica.army.mil)

**POC: John Verdonik**

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**Sponsor – MCoE**



### **TECHNICAL DESCRIPTION**

- Compatible with all MILES equipment (HITS)
- Transmits player or weapon ID
- Lethal sector in front approximately 60 degrees
- Simulates impact out to 328 feet
- Light indication during and after simulation
- Operates from cable trigger
- Uses rechargeable 3.6 Li-Io battery, min 200 hour
- Class 1 eye safe laser transmitter
- Weight approx. 4.2 pound
- Dimensions: 10.6 x 6.7 x 3.2 inches with folded legs

### **OPERATIONAL DESCRIPTION**

The MPIMs FOFT simulates a Directed Fragmentation Weapon system. MPIMs FOFT allows Soldiers to “train as they fight” at home station or at one of the National Training Centers in the US. MPIMs FOFT is a MILES/ HITS compatible system (incorporating a Class I eye-safe laser) complemented with pyrotechnics, sound and light effects or other effects as desired. The MPIMs FOFT has an operational area 100m x 100m and 4m. MPIMs FOFT has the capability of being sighted directionally to provide simulated fragmentation lethality over a specific area and a spread angle of 60 degrees.

### **CONTACT INFORMATION**

#### **Forcit**

1650 Misty Plateau Trail  
Clearwater, FL 33765

[www.forcit.fi](http://www.forcit.fi)

**POC: Deac Heilig**

Tel: (727) 560-9599

Email: [sptechology2@aol.com](mailto:sptechology2@aol.com)

**Sponsor – MCoE**



## **TECHNICAL DESCRIPTION**

The mobile mortar simulator requires two lap top two desktop computer and the same space needed to set up a standard M224 mortar to evaluate Mortar crews as well as Forward Observer's proficiency for all live fire scenarios. Such as: FO and FDC communication, large/small deflection changes, Laying in mortar sections, registrations and Fire for effect . Additionally an after action review for every conducted shot is available and score card for every student can be implemented . TRL 7

## **OPERATIONAL DESCRIPTION**

The M-IDT will provide 11C instructors and students a hands on solution to evaluate students without the need of a range or expending live ammunition. Additionally Forward Observers and mortar teams in Infantry BCT's can maintain and log individuals and mortar crews on one platform simultaneously prior to actual ranges and deployments. Greatly improve the skill sets of junior leader calling for and adjusting fire and provide FDC/Gun crews valuable rehearsed of communication procedures with maneuver elements they will be supporting during operations.

## **CONTACT INFORMATION**

**Saab Bofors Dynamics Switzerland Ltd**  
Allmendstrasse 74  
CH-3600 Thun  
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[Saabgroup](http://www.saabgroup.com)

**POC: Kai Schlegel**  
Tel: (041) 79-6707086  
Email: [kai.schlegel@saabgroup.com](mailto:kai.schlegel@saabgroup.com)

**Sponsor – MCoE**