

INTERNATIONAL INFANTRY & JOINT SERVICES
SMALL ARMS SYSTEMS
SYMPOSIUM, EXHIBITION & FIRING DEMONSTRATION

**“Enhancing Small Arms Effectiveness in
Current and Future Operations”**



JW MARRIOTT INDIANAPOLIS ► INDIANAPOLIS, IN

EVENT #1610

MAY 23 - 26, 2011
WWW.NDIA.ORG/MEETINGS/1610

MONDAY MAY 23 2011

8:00 am - 3:00 pm EXHIBITOR MOVE-IN

8:00 am - 6:30 pm REGISTRATION OPEN

1:00 pm - 4:30 pm TUTORIAL SESSIONS

1:00 pm - 2:00 pm The Application of Technology Readiness Level Assessments in JSSAP (12186)

- ▶ Mr. Wai Luk, *U.S. Army ARDEC*
- ▶ Ms. Jean Choi, *U.S. Army ARDEC*

2:15 pm - 3:15 pm 2011 ITAR Update (12400)

- ▶ Mr. Jason Wong, *Firearms Law Group*

3:30 pm - 4:30 pm National Small Arms Center Educational Initiative (12417)

- ▶ Dr. Ram Narayanan, *Pennsylvania State University*
- ▶ Dr. Stephen Small, *U.S. Army ARDEC*

5:00 pm - 6:30 pm RECEPTION - EXHIBIT HALL

TUESDAY MAY 24 2011

7:00 am - 6:30 pm REGISTRATION OPEN

7:00 am - 8:00 am CONTINENTAL BREAKFAST - FOYER

8:00 am - 8:10 am WELCOME AND ADMINISTRATIVE REMARKS - REGENCY BALLROOM 4-5

- ▶ Mr. Sam Campagna, *Assistant Vice President, Operations, NDIA*
- ▶ Mr. Brian Berger, *Vice President and General Manager, Simunition Operations, General Dynamics-OTS Canada; NDIA Small Arms Committee Chairman*

8:10 am - 8:30 am KEYNOTE ADDRESS

- ▶ MG R. Martin Umbarger, ARNG, *Adjutant General of Indiana*

8:30 am - 8:50 am KEYNOTE ADDRESS

- ▶ LTG John Mulholland, USA, *Commanding General, USASOC (Airborne)*

8:50 am - 10:10 am JSSAST PANEL (12176)

Moderator: COL Scott Armstrong, USA, *Chairman, JSSAST, U.S. Army ARDEC*

Panelists:

- ▶ COL Geoffrey Ellerson, USA
- ▶ CAPT Robert Stohlman, USCG
- ▶ Mr. Charles Zeller, USN
- ▶ Col Patrick Lopardi, USAF
- ▶ LtCol Mark Brinkman, USMC
- ▶ COL James Smith, USA, USSOCOM
- ▶ Mr. Kevin Swenson, USMC, *JNLWD*
- ▶ COL Douglas Tamilio, USA, *PMSW*

10:10 am - 10:40 am BREAK - EXHIBIT HALL

10:40 am - 11:40 am PM MAS SESSION

- ▶ Mr. William Sanville, *DPM MAS*
- ▶ LTC Jeffrey Woods, USA, *DPM Small Cal Ammo*

11:40 am - 12:35 pm AWARDS LUNCHEON - GRIFFIN HALL

- ▶ CHINN AWARD presented to Mr. Charles Buxton, *Naval Surface Warfare Center Presented by Mr. Steve Faintich, St. Marks Powder*
- ▶ HATHCOCK AWARD presented to SGM Jason Beighley, USA (Ret) *Presented by Mr. Jim Schatz, LVT, Inc.*

- 12:40 pm - 1:00 pm** **UPDATE ON INTERNATIONAL EFFORTS TO REGULATE MILITARY SMALL ARMS AMMUNITION**
▶ Mr. Hays Parks, *Former Senior Associate Deputy General Counsel (International Affairs), Office of General Counsel, Department of Defense*
- 1:00 pm - 2:00 pm** **PM SOLDIER WEAPONS**
Session Chair: COL Doug Tamilio, USA
▶ LTC Tom Ryan, USA
▶ LTC Chris Lehner, USA
▶ MAJ Chris Conley, USA
- 2:00 pm - 4:50 pm** **JOINT SERVICES SMALL ARMS PROGRAM (JSSAP) SESSION**
Session Chair: Mr. Joel Goldman, *Chief JSSAP Office, U.S. Army ARDEC*
- 2:00 pm - 2:20 pm** **Joint Service Small Arms Program (JSSAP) Technology Research & Development Strategy (11760)**
▶ Dr. Barton Halpern, *U.S. Army ARDEC*
- 2:20 pm - 2:40 pm** **Advanced Lethal Armament Technology for Small Arms (12145)**
▶ Mr. Chris Gandy, *U.S. Army ARDEC*
- 2:40 pm - 3:00 pm** **Advances in Recoil Mitigation Technology for Small Arms (12167)**
▶ Mr. Hansen Lukman, *U.S. Army ARDEC*
- 3:00 pm - 3:30 pm** **BREAK - EXHIBIT HALL**
- 3:30 pm - 3:50 pm** **Advanced Fire Control for Small Arms (12141)**
▶ Dr. Eric Beckel, *U.S. Army ARDEC*
- 3:50 pm - 4:10 pm** **Lightweight Small Arms Technologies - The Final Installment (12170)**
▶ Mrs. Kori Phillips, *U.S. Army ARDEC*
- 4:10 pm - 4:30 pm** **Facility Infrastructure Study for Caseless Ammunition (12599)**
▶ Mr. Christopher Perhala, *Battelle*
- 4:30 pm - 4:50 pm** **National Small Arms Center/National Small Arms Technology Consortium (12190)**
▶ Mr. Frank Puzycki, *U.S. Army ARDEC*
- 5:00 pm - 6:30 pm** **RECEPTION - EXHIBIT HALL**

WEDNESDAY MAY 25 2011

- 7:00 am - 4:50 pm** **REGISTRATION OPEN**
- 7:00 am - 8:10 am** **CONTINENTAL BREAKFAST - FOYER**
- 8:10 am - 4:50 pm** **CONCURRENT SESSIONS**

	REGENCY BALLROOM 5 AMMUNITION <i>Session Chair: Mr. Jim Schatz, LVT, Inc.</i>	REGENCY BALLROOM 4 SYSTEM INTEGRATION <i>Session Chair: Mr. Paul Shipley, AAI, Corp.</i>
8:10 am	12407 - U.S. Coast Guard Caliber .40 Ammunition Mr. Tim Ream, <i>NSWC Crane</i>	12231 - Development and In-Theater Operation Evaluation of Moveable Weapon Mount System for the CH47 Helicopter Mr. Adam Jacob, <i>U.S. Army ARDEC</i>
8:30 am	12430 - Lightweight Small Caliber Ammunition Mr Mark Leng, <i>U.S. Army ARDEC</i>	12118 - Development of an Alternate M240B Ammunition Container for Coast Guard HH65 Aircraft Mr. Adam Jacob, <i>U.S. Army ARDEC</i>

8:50 am	11456 - Seize the Moment—An Optimized Caliber and the IC Competition Mr. Jim Schatz, <i>LVT, Inc.</i>	12220 - MIL-PRF-XX613 and MIL-STD-X618, The Navy Upgrades Its Crew Served Weapons Positions Mr. Christopher Brown, <i>NSWC Crane</i>
9:10 am	12322 - .50 Cal. Advanced Propellants Mr. Jonathan Howard, <i>St. Marks Powder</i>	12221 - Weapon Command and Control System for the MH-60S Mr. William Reed, <i>NSWC Crane</i>
9:30 am	12437 - Solid Propellant Propulsion System for Low-Velocity, Non-Lethal Projectiles with High Initial Thrust for Spin Stabilization from Fast-Twist Rifling Dr. Jeffrey Widder, <i>Battelle</i>	12570 - Increasing ROWS Lethality with Optical Weapon Detection Systems Dr. Pete Weiland, <i>Radiance Technologies</i>

9:50 am - 10:20 am **BREAK - EXHIBIT HALL**

10:20 am - 11:40 am **CONCURRENT SESSIONS CONTINUED**

	REGENCY BALLROOM 5 AMMUNITION <i>Session Chair: Mr. Jim Schatz, LVT, Inc.</i>	REGENCY BALLROOM 4 SYSTEM INTEGRATION <i>Session Chair: Mr. Paul Shipley, AAI, Corp.</i>
10:20 am	12612 - 40mm High Explosive Multi-Mode (HEMM) Grenade Concepts Mr. Christopher Perhala, <i>Battelle</i>	12257 - 360° Slew to Cue on the CROWS II Mr. Tim Eagleson, <i>Kollmorgen Electro Optical</i>
10:40 am	12759 - Cartridge Case Development: Continued Success with an Advanced Lightweight Material Mr. Christian Miller, <i>ATK Armament Systems</i>	12414 - Advanced Remote/Robotic Armament System (ARAS) Mr. Robert Testa, <i>U.S. Army ARDEC</i>
11:00 am	12200 - 7.62mm Lethal Limited Range Round Mr. Stephen McFarlane, <i>U.S. Army</i>	
	REGENCY BALLROOM 5 AMMUNITION <i>Session Chair: Mr. Jim Schatz, LVT, Inc.</i>	REGENCY BALLROOM 4 INTERNATIONAL <i>Session Chair: Mr. John Edwards, U.S. Army ARDEC</i>
11:20 am	12343 - Influence of Material Properties on Cartridge Case Function Mr. Daniel Gubernat, <i>U.S. Army RDECOM-ARDEC</i>	12171 - Non Lethal Capabilities International Approach, Current/Future Mr. John Edwards, <i>U.S. Army ARDEC</i>

11:40 am - 1:00 pm **LUNCHEON SPEAKER - GRIFFIN HALL**
“Hidden Histories: American Small Arms - Making (1798-1830)”
 ► Dr. Stephen Small, *JSSAP*

1:00 pm - 5:00 pm **CONCURRENT SESSIONS CONTINUED**

	REGENCY BALLROOM 5 MODELING & SIMULATION <i>Session Chair: Mr. Mark Minisi, U.S. Army ARDEC</i>	REGENCY BALLROOM 4 INTERNATIONAL <i>Session Chair: Mr. John Edwards, U.S. Army ARDEC</i>
1:00 pm	11872 - Update on Gas Flow and Heat Transfer Modeling in Small Arms Systems Dr. Laurie Florio, <i>U.S. Army ARDEC</i>	12314 - The Evolution of Nammo's 40mm x 53 AGL Ammunition Mr. Helge Stadheim, <i>Nammo Raufoss</i>
1:20 pm	12419 - M2 HB Gun System Modeling and Simulation in Support of New Cartridge Development Ms. Kathryn Hunt, <i>Marine Corp Systems Command</i>	12315 - NATO Small Arms Ammunition Interchangeability via Direct Evidence Testing Mr. Dominic Pellegrino, <i>U.S. Army ARDEC</i>
1:40 pm	12620 - Lubrication's Contribution to Ammunition Failure Mr. Mark Minisi, <i>U.S. Army ARDEC</i>	12333 - Introduction to Chinese Grenade Launchers? Part II? Ms. Juan-juan Yang, <i>China R&S Academy Machinery</i>
2:00 pm	12441 - Ballistic Performance of Steels and Aluminums in FE Firing Simulations Dr. Justin Mach, <i>ATK Small Caliber Systems</i>	12397 - Improving In-Service Small Arms Systems; An Australian Experience Mr. Graham Evenden, <i>Thales Australia</i>
2:20 pm	12720 - Measuring and Simulating Weapons Shock and its Effect on Mounted Accessories Mr. James Donovan, <i>NSWC Crane</i>	12402 - Multifunctional Cartridge Technology Mr. An Baolin, <i>Small Arms Research Institute, PLA</i>

2:40 pm - 3:10 pm **BREAK - EXHIBIT HALL**

3:10 pm - 4:50 pm **CONCURRENT SESSIONS CONTINUED**

	REGENCY BALLROOM 5 WEAPONS <i>Session Chair: Mr. T.C. Phillips, FN USA, LLC</i>	REGENCY BALLROOM 4 INTERNATIONAL <i>Session Chair: Mr. John Edwards, U.S. Army ARDEC</i>
3:10 pm	12109 - Rapid Development and Integration of Remote Weapon Systems to Meet Operational Requirements Mr. Joseph Burkart, <i>NSWC Crane</i>	12677 - The MK 19 Capability Upgrade Package: The Rheinmetall Velan Programmable Airburst Ammunition & Vingmate Fire Control Unit Mr. Franz von Stauffenberg, <i>Rheinmetall Waffe Munition GmbH</i>
3:30 pm	12252 - Explosively-Clad Refractory Barrel Liners for Small Caliber Machine Guns Dr. Douglas Taylor, <i>TPL, Inc.</i>	12330 - 40mm Low Velocity Air-Burst Munitions System Mr. Aw Cheng Hok, <i>ST Kinetics</i>
3:50 pm	12299 - The HAMR Project Mr. Xavier Gavage, <i>FN Herstal</i>	Tungsten Carbide Material Research and Development of Small Arms Ammunition Armour Piercing Mr. Fredrik Eringe, <i>Nammo Talley</i>

4:10 pm	12338 - Small Arms Flash Measurement Mr. Owen Cramer, <i>SAIC/NSWC Crane</i>	12818 - Tracer Development in a Non-Conventional Plastic Moulded Frangible Projectile Mrs. Nathalie Lahaie, <i>GD-OTS Canada</i>
4:30 pm	12482 - S&T Activities in Support of the Canadian Small Arms Replacement Program Mr. Paul Harris, <i>DRDC Valcartier</i>	Development of Infrared Tracers Ms. Isabelle Theobald, <i>GD-OTS Canada</i>

THURSDAY MAY 26 2011

7:00 am - 12:00 pm REGISTRATION OPEN

7:00 am - 8:00 am CONTINENTAL BREAKFAST - FOYER

8:00 am - 8:10 am ADMINISTRATIVE ANNOUNCEMENTS - REGENCY BALLROOM 4-5

- ▶ Mr. Brian Berger, *Vice President and General Manager, Simunition Operations, General Dynamics-OTS Canada; NDIA Small Arms Committee Chairman*

8:10 am - 8:30 pm State of the NDIA and New Non-Traditional Armament Section

- ▶ Mr. Dave Broden, *Broden Resource Solutions, LLC; NDIA Armaments Division Chair*
- ▶ Mr. Peter Spatharis, *Chief Executive Officer, ACAGI; NDIA Non-Traditional Committee Chair*

8:30 am - 10:50 am WARFIGHTER EFFECTIVENESS

Session Chair: MAJ Matthew Bowler, USA, *U.S. Army ARDEC*

8:30 am - 8:50 am XM25 Individual Semi-Automatic Airburst System (ISAAS) (12439)

- ▶ Mr. Michael Stucki, *ATK*

8:50 am - 9:10 am Wireless Technologies for Enhancing Small Arms Effectiveness (12546)

- ▶ Dr. Ram Narayanan, *Pennsylvania State University*

9:10 am - 9:30 am Technical Description Methods Used in the Measurements of Accuracy/Precision (12901)

- ▶ Mr. Charles Marsh, *NSWC Crane*

9:30 am - 9:50 am BREAK - FOYER

9:50 am - 10:10 am SWEAT Course (12791)

- ▶ Mr. Michael Wilson, *U.S. Army ARDEC*

10:10 am - 10:30 am Aggressor Suppression via the Use of Non-Lethal Projectiles and Launcher Systems (12267)

- ▶ Mr. Dan Hartman, *General Dynamics-OTS*

10:30 am - 10:50 am Rapid Acquisition of Crew Served Weapons Accessories (12499)

- ▶ Mr. Jason Davis, *NSWC Crane*

10:50 am - 11:15 am Closing Remarks

- ▶ Mr. Brian Berger, *Vice President and General Manager, Simunition Operations, General Dynamics-OTS Canada; NDIA Small Arms Committee Chairman*

12:00 pm - 12:15 pm Board Buses for Firing Demonstration

1:30 pm - 4:30 pm Firing Demonstration at Camp Atterbury

- ▶ Lunch provided at Camp Atterbury

AWARD INFORMATION

CHINN AWARD

The Chinn Award is presented annually to honor a government or industry individual who, in the opinion of the Small Arms Committee Executive Board, has made significant contributions to the field of small arms and/or infantry weapons systems. A significant contribution is considered to be a creative invention, new design or innovative concept in small arms weapons, ammunition or ancillary equipment that provides an advancement in the state-of-the art or capability enhancement that clearly benefits the warfighting or general military capability of the U.S. The Chinn Award may also be conferred as recognition to an individual who has performed sustained superior service in a career field of science, engineering, test and evaluation, manufacturing program management, academic study and research, publishing or maintenance relating to military small arms or infantry weapons.

The Chinn Award is named in honor of LtCol George M. Chinn, USMC, a career Marine who dedicated his life to the study, development and refinement of machine gun mechanisms. LtCol Chinn is remembered for his work as a gun designer and for having compiled a five volume reference work entitled, "The Machine Gun."

Presented to Mr. Charles Buxton, *Naval Surface Warfare Center*

HATHCOCK AWARD

The Hathcock Award is presented to recognize an individual who, in the opinion of the Small Arms Committee Executive Board, has made significant contributions in operational employment and tactics of small arms weapons systems which have impacted the readiness and capabilities of the U.S. military or law enforcement. A significant contribution is considered to be a superior performance of duties in an operational environment or the development of tactics or training.

The Hathcock Award is named in honor of Gunnery Sergeant Carlos N. Hathcock, II, USMC, a career Marine who dedicated his life to the service of this country in both the military and law enforcement communities. He was honest, tactful, considerate, courageous, quietly proud and determined in all things and all places from the range to the battlefield. "The Gunny" not only distinguished himself in combat as a scout-sniper, but also as a competitive marksman and trainer. In his capacity as a trainer, he not only significantly impacted the current United States Marine Corps Scout-Sniper Program, but also influenced the sniper programs of the other military services and similar law enforcement programs nationwide.

Presented to SGM Jason Beighley, USA (Ret)

Airtro nic 225	Arma ment 226	MICO R 325	MAST Techn 326	ARES, Inc. 425	Aimp oint 426	Manro y 525	Avion Soluti 526
Ameri can 223	Badg er 224	McNet t 323	Smith & 324	Contr act 423	ATK 424	TASE R 523	NIC Indust 524
Ohio Ordna 221	General Dynamics-OTS 220	DSG Techn 321	Trijicon 320	Platt Mount 421	Schul er 422	Laser max 521	Sams on 522
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KDH DEFE 207	Sierra Bullet 208	US Ordnance 305	Annist on 407		Knigh t's 408	Remington Arms 505	Arrow Tech 510
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	Marin e 204						ITT Enidi 506
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General Dynamics Armament and
201

POSTERS

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EXHIBITING COMPANIES

Advanced Interactive Systems, Inc	19	Laser Shot	516
Aimpoint, Inc	426	Lasermax	521
Airtronic USA	225	Magpul Industries Corp.	508
American Rheinmetall Munitions	214	Manroy Defense Systems	525
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ITT Enidine, Inc.	506	TASER International	523
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KDH Defense Systems, Inc.	207	Trijicon	320
Knight's Armament Company	408	US Ordnance	305
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LaRue Tactical	419	VingTech	313
Laser Devices, Inc.	210		

POSTER PRESENTATIONS

11451 - 300 ACC Blackout (7.62x35mm)

- Mr. Robert Silvers, *Advanced Armament Corp.*

12264 - Adapter for GREM Use on Short Barrel Rifles

- Mr. Anthony Hawthorne, *U.S. Army*

12269 - Advanced Aluminum Alloys Enabling High Performance Firearm Components

- Mr. Travis Schmidt, *Alcoa Forgings & Extrusions*

12329 - C4Grip - World's First 2m Immersible Assault Rifle Smart Forward Grip

- Mr. Gil Limonchik, *Silynx Communications, Inc.*

12443 - RESET's Rifle Integrated Power/Data Rail (RIPR)

- Mr. Mike Stucki, *ATK*

12445 - Multi Environment Ammunitions (MEA)

- Mr. SG Chung, *International Trade & Tech*

11582 - Small Caliber Dispersion Modeling

- Mr. Jeff Siewert, *Arrow Tech Associates, Inc.*

12478 - Enhancing the "Sniper" Effectiveness in Current and Future Operations

- Ms. Kim Dahl, *Nammo Raufoss AS*

12540 - High Speed, Three Dimensional Data Capture of Ballistic Impact, Fragmentation and Behind Armor Debris

- Mr. Oliver Frank, *Airtronics, Inc.*

SMALL ARMS SYSTEMS

ADDITIONAL AUTHORS

Abstract	Abstract Title	Secondary Authors
12167	Advances in Recoil Mitigation Technology For Small Arms	Dr. Kevin Russell, P.E.
12176	Joint Service Small Arms Synchronization Team (JSSAST) Panel	COL Geoffrey Ellerson, Mr. Chuck Zeller, COL Patrick Lopardi, LtCol Mark Brinkman
12186	The Application of Technology Readiness Level Assessments in JSSAP	Ms. Jean Choi
12190	National Small Arms Center/National Small Arms Technology Consortium	Mr. Karl Lewis
12200	7.62mm Lethal Limited Range Round	Mr. Sung Chung
12257	360° Slew to Cue on the CROWS II	Mr. Michael Rose
12267	Aggressor Suppression via the Use of Non-Lethal Projectiles and Launcher Systems	Mr. Dan Hartman
12315	NATO Small Arms Ammunition Interchangeability via Direct Evidence Testing	Mr. Charles Kirkman
12322	.50 CAL. Advanced Propellants	Mr. Steve Faintich
12333	Introduction to Chinese Grenade Launchers?Part II?	Mr. Yulin Wang, Mr. Yuenong Dong, Mr. Yinguo Jin, Ms. Herui Mao
12338	Small Arms Flash Measurement	Mr. Mark Johnson
12343	Influence of Material Properties on Cartridge Case Function	Ms. Connie Hackett
12397	Improving In-Service Small Arms Systems; An Australian Experience	Mr. Collin Galvin
12402	Multifunctional Cartridge Technology	Mr. Ma Ligang
12414	Advanced Remote/Robotic Armament System (ARAS)	Mr. William Burgermeister, Mr. Brian Hoffman
12417	National Small Arms Center Educational Initiative	Dr. Stephen Small
12419	M2 HB Gun System Modeling and Simulation in Support of New Cartridge Development	Mr. Jon Conner
12430	Lightweight Small Caliber Ammunition	Mr. Stephane Lepine
12437	Solid Propellant Propulsion System for Low-Velocity, Non-Lethal Projectiles with High Initial Thrust for Spin Stabilization from Fast-Twist Rifling	Mr. Christopher Perhala, Mr. James Rascoe
12439	XM25/ Individual Semi-Automatic Airburst System (ISAAS)	Mr. Mike Stucki, Mrs. Barbara Muldowney, LTC Christopher Lehner
12441	Ballistic Performance of Steels and Aluminums in FE Firing Simulations	Mr. Mark Lee
12482	S&T Activities in Support of the Canadian Small Arms Replacement Program	Mr. Gilles Pageau, Maj Bruce Gilchrist, LCol Luc Angiolini, LCol Mike Bodner
12570	Increasing ROWS Lethality with Optical Weapon Detection Systems	Dr. Pete Weiland
12599	Facility Infrastructure Study for Caseless Ammunition	Mr. Martin Hopkins, Mr. Steven Lorence, Mr. Byron Tolbert
12612	40mm High Explosive Multi-Mode (HEMM) Grenade Concepts	Dr. Michael Fisher, Mr. Richard Givens, Dr. Ivan Tornes, Mr. John Leach
12677	The MK 19 Capability Upgrade Package: The Rheinmetall Velan Programmable Airburst Ammunition & Vingmate Fire Control Unit	Mr. Brian Sullivan
12818	Tracer Development in a Non-Conventional Plastic Moulded Frangible Projectile	Mr. Carol Jalbert, Mr. Etienne Munger, Mr. Christian Roy, Mr. Sylvio Prince

KOLLMORGEN

Electro-Optical

Kollmorgen Electro-Optical, located in Northampton, Massachusetts provides state-of-art imaging solutions to U.S. Army, Navy and International customers. Through close collaboration with the customer, we balance affordability with optimum technical performance. This understanding of customer needs is reflected in the design of the breakthrough O·N·E 360™ Situational

Awareness System for combat vehicles. Protector O·N·E 360™ enables the war fighter to operate in a complete closed hatch environment by providing close in reconnaissance, surveillance and target acquisition. O·N·E 360™ allows the Soldiers to perform non threatening electro-optical interrogation of a target and Slew-to-Cue a remote weapon station for lethal engagements, or queue a long range electro optical system for further evaluation. The O·N·E 360™ provides a panoramic and flexible display reducing data overload and presenting the battlefield in user-friendly fashion. Integrated with CROWS, the 360° system provides an easily fielded solution to a critical capability gap.

Kollmorgen Electro-Optical recently opened a new 150,000 square foot facility located at 50 Prince Street in Northampton, MA. This modern, LEED certified center of excellence was designed for lean manufacturing. It is comprised of office and manufacturing space that facilitates a visual connection between the design, development and manufacturing of our products. The manufacturing spaces have been enclosed in glass to allow proper cleanliness, temperature and ESD control. The facility has a Class 10,000 clean room, a 65 foot tower used for vertical testing of submarine sensors and a separate, dedicated testing vestibule for Electro Optical directors. There is an Engineering Lab for the integration of prototype hardware and a Research and Development Lab used to pilot new technology and ideas. The building was designed and built with growth in mind and has 15,000 square feet of expansion space for future business needs.

Kollmorgen Electro-Optical produces the imaging systems that enable you to look, see and target threats on the battlefield.

For further information please contact Tim Eagleson at teagleson@eo.kollmorgen.com or visit our website at www.eo.kollmorgen.com.

SAVE THE DATE!

**JOINT ARMAMENTS CONFERENCE, EXHIBITION & FIRING
DEMONSTRATION**

**“21ST CENTURY WEAPON SYSTEMS - PROVIDING THE RIGHT
RESPONSE”**

SEATTLE, WASHINGTON, MAY 14-17, 2012

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