

(U) Joint Non-Lethal Weapons Directorate (JNLWD)



(U) Non-Lethal Weapons (NLW) Reference Book

2011

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Purpose and Explanation of Terms

PURPOSE: The purpose of the NLW Reference Book is to provide a single source document that contains key information about NLW descriptions, effects, characteristics, concepts of employment, and associated operational parameters and considerations to enhance NLW education and training.

EXPLANATION OF TERMS: The NLW described in this book are at various acquisition stages and of varied Service interest. Service-unique systems meet specific Service needs, often meet Joint needs, and are provided to ensure Joint visibility and consideration. Systems are grouped as follows:

- **FIELDDED:** NLW currently in use.
- **PROTOYPE:** NLW which have completed development, produced in limited quantities and no fielding decision has been made.
- **DEVELOPMENTAL:** NLW requiring technological or other improvements prior to production approval. Typically denotes a Service-led program of record with a technical readiness level (TRL) of 5 or higher. Anticipated fielding dates are provided, but are subject to change and should not be used for acquisition or resource planning.
- **CONCEPTUAL:** Ideas or concepts that can support exercises and modeling & simulations. Typically denotes a pre-acquisition science and technology project with a TRL of 4 or less. Conceptual capabilities do not currently exist, but are potential technologies that could be developed to satisfy a non-lethal requirement in the near future.

DoD Non-Lethal Weapons Program Background

The DoD NLW Program was established to provide warfighters with NLW that support the full-range of military operations. The program began in 1996 as a Congressional initiative. DoD Directive 3000.3 establishes policy and assigns responsibilities for the DoD NLW Program. It is DoD policy that NLW;

- NLW should be designed to help decrease the post-conflict costs of reconstruction.
- NLW's availability shall not limit a commander's inherent authority and obligation to use all necessary means available and to take all appropriate action in self-defense.
- NLW's presence, nor the potential effect of NLW, shall constitute an obligation for their employment or a higher standard for employment of force than provided for by applicable law.
- NLW shall not be required to have a zero probability of producing fatalities or permanent injuries.
- NLW may be used in conjunction with lethal weapon systems to enhance the latter's effectiveness and efficiency in military operations.

NLW Definition

“Weapons, devices and munitions that are explicitly designed and primarily employed to incapacitate targeted personnel or materiel immediately, while minimizing fatalities, permanent injury to personnel, and undesired damage to property in the targeted area or environment. Non-lethal weapons are intended to have reversible effects on personnel or materiel.”

(JROCM 060-09, Initial Capabilities Document for Counter Personnel Joint Non-Lethal Effects and Initial Capabilities Document for Counter Materiel Joint Non-Lethal Effects)

Frequently Asked Questions

<p>Legal Use of NLW</p>	<p>QUESTION: Do NLW legal considerations differ from lethal weapons? ANSWER: No. In accordance with DoD Directives 3000.3, 2060.1 and U.S. Law, both lethal and NLW must be reviewed to ensure that they comply with U.S. domestic and applicable international laws and treaties, to include the Law of Armed Conflict (Law of War). Preliminary legal and treaty compliance reviews allow the Joint Non-Lethal Weapons Directorate (JNLWD) to ensure funds are focused on viable non-lethal technologies. Based on these reviews, there are no restrictions on the continued development of NLW. Final legal reviews are still required for NLW in the Developmental and Conceptual stages.</p>
<p>NLW Definition</p>	<p>QUESTION: What is considered a NLW? ANSWER: The definition of NLW includes “weapons, devices and munitions.” This definition is very broad and includes devices and munitions that are not normally considered “weapons,” such as acoustic hailing devices.</p>
<p>Employment Requirements</p>	<p>QUESTION: Are NLW required to be used prior to lethal weapons? ANSWER: No. There is no requirement to use NLW prior to using lethal weapons or employing deadly force. Based on the threat, target, and situation, U.S. forces may immediately employ lethal weapons and deadly force.</p>
<p>Use of Force</p>	<p>QUESTION: Why are NLW important? ANSWER: NLW provide another “option” to the force. In past operations, the effective employment of NLW resolved escalation of force situations. Specifically, the NLW created the right “direct effect” on the personnel/materiel targeted. The use of NLW has also generated positive “psychological effects” on others in the area and helped to contribute to mission accomplishment. The perceptions associated with the use of NLW have been a positive and powerful influence in local communities on “winning the hearts and minds” of the local populace. The employment of NLW has helped reduce the loss of life and collateral damage.</p>

Frequently Asked Questions

<p style="text-align: center;">Riot Control Agents</p>	<p>QUESTION: What limitations exist regarding the use of a Riot Control Agent (RCA)?</p> <p>ANSWER: Strict laws, regulations, and rules of engagement (ROE) exist to control the use of NLW RCAs. For example, the United States, by Executive Order No. 11850, 8 April 1975, 40 Fed. Reg. 16187, renounced as a matter of national policy, the first use of RCAs in war, except in defensive military modes including:</p> <ul style="list-style-type: none"> • Use of RCAs in riot control situations in areas under direct and distinct U.S. military control, to include controlling rioting prisoners of war. • Use of RCAs in situations in which civilians are used to mask or screen attacks and civilian casualties can be reduced or avoided. • Use of RCAs in rescue missions in remotely isolated areas, of downed aircrews and passengers, and of escaping prisoners. • Use of RCAs in rear echelon areas outside the zone of immediate combat to protect convoys from civil disturbances, terrorists and paramilitary organizations. <p>NOTE: Specific authorization must be received to employ RCAs.</p>
<p style="text-align: center;">Allied and Multi-National Operations</p>	<p>QUESTION: What NLW considerations are important during Allied and Multi-National Task Force Operations?</p> <p>ANSWER: The availability and employment of NLW will vary with other allied and coalition partners. The lack of equal access to NLW presents interoperability concerns and provides force and operational seams that an adversary could try to exploit. These concerns should be addressed during mission planning and integrated into operational plans. Finally, mission-specific policies should address the different NLW capabilities possessed by the various members of the coalition in a way that minimizes interoperability issues and adversary exploitation.</p>

Frequently Asked Questions

<p>NLW Identifiable Markings</p>	<p>QUESTION: Are NLW identified by specific markings or colors?</p> <p>ANSWER: The current U.S. policy is to not change the appearance of NLW to distinguish them from their lethal counterparts, but rather develop systems that have a dual capability in delivering both lethal and non-lethal munitions/effects as the situation dictates. Several U.S. Allies have expressed a desire to clearly distinguish NLW from lethal weapons by some method, such as coloring NLW blue or orange. While this may be preferable in some situations, including crowd control and to avoid mistakenly using a lethal weapon, this is not preferred by the United States. A NLW that is marked with distinct colors or markings would make it easy for an adversary to identify and counter that NLW.</p>
<p>Optical Distractors</p>	<p>QUESTION: What limitations exist regarding the use of Optical Distractors (e.g., Dazzling Lasers)?</p> <p>ANSWER: Strict laws, SECDEF guidance, and ROE exist to control the use of some of the Optical Distractors. For example, Certain Conventional Weapons Convention Protocol IV, ratified by the United States, requires its parties to take all feasible precautions to avoid the incidence of permanent blindness to unenhanced vision.</p>

Policy References

Applicable Directives and Instructions

1. DoDD 3000.3, Policy for Non-Lethal Weapons, 9 July 1996, Certified Current as of 21 November 2003.
2. DoDD 3000.07, Irregular Warfare (IW), 1 December 2008.
3. DoDI 3000.05, Stability Operations, 16 September 2009.
4. DoDD 3025.18, Defense Support of Civil authorities (DSCA), 29 December 2010.
5. DoDD 5210.56, Carrying of Firearms and the Use of Force by DoD Personnel Engaged in Security, Law and Order, or Counterintelligence Activities, 1 April 2011.

Active Denial System

1. Principal Deputy Under Secretary of Defense Memorandum, Policy Position on the Active Denial System (ADS), 18 June 06.

Human Electro-Muscular Incapacitation Devices

1. Department of the Army Memorandum, Department of the Army Thomas A. Swift Electric Rifle (TASER) Policy for Installation Law Enforcement Use, 3 December 2008.
2. Department of the Air Force Memorandum, Taser Policy, 1 November 2007.
3. OPNAV Instruction 3352.1, Human Electro-Muscular Incapacitation (HEMI) Devices, 2 April 2009.
4. MARADMIN 50/08, Marine Corps Training and Use of Human Electro-Muscular Incapacitation (HEMI) Devices, DTG 02036Z OCT 08.

Riot Control Agents

1. Executive Order No. 11850, Renunciation of Certain Uses in War of Chemical Herbicides and Riot Control Agents, 8 April 1975.

Policy References

Malodorants

1. Assistant Secretary of Defense (Nuclear and Chemical and Biological Defense Programs), Chemical Weapons Convention (CWC) Compliance Review Group (CRG) Presentation by Technical Working Group on Malodorants, 16 May 2007.

NATO

1. NATO Policy on Non-Lethal Weapons, 27 September 1999.

Oleoresin Capsicum (OC) Spray

1. MARADMIN 458/08, Updated Guidance on Marine Corps Training and Employment of Oleoresin Capsicum (OC) Spray, DTG 191857Z AUG 08.

Optical Distractors

1. DoDI 6055.15, DoD Laser Protection Program, 4 May 2007.
2. Secretary of Defense Memorandum, DOD Policy on Blinding Lasers, 11 January 1997.
3. Joint Systems Safety Review Guide for USSOCOM Programs (Applies to Optical Distractors), 12 October 2007.

Public Affairs Guidance

1. Public Affairs Guidance, Join Non-Lethal Weapons Program, DTG 302004Z JUL 03 MSGID/GENADMIN/PA DIV.

Test and Evaluation

1. Office of the Secretary of Defense (Operational Test and Evaluation) Memorandum, Policy for Operational Test and Evaluation and Survivability Testing of Force Protection Equipment and Non-Lethal Weapons, 23 September 2008.

NLW Legal Reviews*

40mm NL Crowd Dispersal Cartridge

1. 40 mm Non-lethal Crowd Dispersal Cartridge (XM1044), 15 December 2006.

66mm Vehicle Launched Grenades

1. 66mm Vehicle Launched Non Lethal Grenades (XM98 and XM99) (LVOSS), 8 February 1999.

Active Denial System

1. Active Denial System 2, 31 March 2008.
2. Active Denial System, 26 April 2004.

Airburst Non-Lethal Munition

1. XM1112 40 mm, Low Velocity Airburst Non-Lethal Munitions, 5 June 2006.
2. Airburst Munition, 24 March 2003.

FN 303

1. Fabrique Nationale (FN) Herstal's Less Lethal Launcher System and Projectiles, FN-303, 29 October 2003.

Human Electro-Muscular Incapacitation Devices

1. X26 TASER®, 14 August 2007.
2. Non-Lethal TASER® Anti-Personnel Munition, 21 August 2004.
3. M26 Advanced TASER®, 8 July 2002.

Malodorants

1. XM1063 Malodorant 155mm Artillery Round, 2007.

Modular Crowd Control Munition

1. Modular Crowd Control Munition (MCCM), 1 October 1998.

* This is a compilation of selected legal reviews. A more detailed list will be published in the DoD NLW Capabilities Roadmap Version 1, or is available upon request from the JNLWD

NLW Legal Reviews

Non-Lethal Mortar

1. Non-Lethal Mortar, 25 June 2002.

Optical Distractors

1. LA9/P Dazzling Laser Under a Maritime Concept of Employment, 15 September 2009.
2. B.E. Meyers Custom Green Beam Laser (GBD-IIIC) with Safety Control Module (SCM) Nomenclature (Laser Handheld)(LA9/P), 11 June 2009.
3. B.E. Meyers Green Beam Designator Laser and B.E. Meyers GLARE Military Operations Urban Terrain 532P-M Laser Dazzler, 1 April 2008
4. Ghost Laser, 18 April 2006.
5. Mini Green Laser, 18 April 2006.
6. GBD-III Custom Laser Dazzler and the ATC CHP Laser Dazzler, 22 December 2005.

Oleoresin Capsicum (OC) Spray

1. TigerLight Guardian OC Spray, 3 June 2008.
2. Oleoresin Capsicum Pepper Spray for Law Enforcement Purposes, 20 September 1996.
3. MK3 First Defense/Pepper Foam, 17 April 2003.

Portable Vehicle Arresting Barrier

1. Portable Vehicle Immobilization System (PVIS/PVAB), 16 October 1998.

Riot Control Agents

1. Grenade, Discharger, Anti-Riot, Irritant L96A1, and Grenade, Discharger, Anti-Riot, Practice, L97A1, 10 October 2001.
2. SM37 Mid-Size Riot Control Agent Dispenser (MCRD), 19 November 1999.
3. Grenade, Discharger, Anti-Riot, Irritant, XL96E1, and Grenade, Discharger, Anti-Riot, Practice, XL97E1, 10 August 1999.

NLW Legal Reviews

Single Net Solution and Remote Deployment Device

1. Remote Deployment Device (RDD) and Single Net Solution (SNS), 2009.

Thermobarics

1. Thermobaric Devices for Non-Lethal Weapons Applications, 24 February 2003.

Vehicle Lightweight Arresting Device

1. Vehicle Lightweight Arresting Device (VLAD), 23 March 2004.

NLW Arms Control Compliance Assessments

Counter-Personnel

1. Arms Control Compliance Assessment for Counter-Personnel Joint Non-Lethal Effects Initial Capabilities Document, 22 December 2008.
2. Arms Control Compliance Assessment for Counter Personnel Non-Lethal Capabilities, 20 March 2006.

Counter-Materiel

1. Arms Control Compliance Assessment for Counter Materiel Joint Non-Lethal Effects Initial Capabilities Document, 17 February 2009.

40mm Munition

1. Arms Control Compliance Assessment for the Development of a 40MM Munition Containing Malodorants and Capsaicin, 1 April 2004.

Acoustics

1. Arms Control Compliance Assessment for Long Range Acoustic Device (LRAD), 9 December 2004.

Active Denial

1. Arms Control Compliance Assessment for Active Denial System (ADS) Draft Capability Development Document Increment I, 9 May 09.
2. Arms Control Compliance Assessment for Active Denial System, 12 July 2007.
3. Active Denial System Treaty Compliance, 28 March 2004.

Airburst NL Munition

1. Arms Control Compliance Assessment for XM1112, 40MM Low Velocity, Airburst Non-Lethal Munition (ANLM), 16 March 2007.

NLW Arms Control Compliance Assessments

Anti-Swimmer Air Gun

1. Arms Control Compliance Assessment for the Non-Lethal Anti-Swimmer Air Gun, 7 June 2006.

Family of Area Denial Munitions

1. Arms Control Compliance Assessment for the Family of Area Denial Munitions (NADM) Hand-Held Emplaced Non-Lethal Munition Capability Development Document, 14 June 2007.

Flash Bang Grenades

1. Preliminary Arms Control Compliance for Improved Flash Bang Grenade (IFBG) Program Increment III of June 2008, 12 August 2008.
2. Arms Control Compliance Assessment for Special Operations Flash Bang Grenade Increment II, 30 May 2008.
3. Arms Control Compliance Assessment for Improved Flash Bang Grenade (IFBG), 10 January 2007.

Human Electro Muscular Incapacitation Devices

1. Arms Control Compliance Assessment for Extended Duration Human Electro-muscular Incapacitation Device, 7 December 2010.
2. Arms Control Compliance Assessment for OPNAV Instruction 3352.T (Department of the Navy TASER® Policies and Procedures), 30 January 2008.
3. Arms Control Compliance Assessment for M26 and X26 TASERs®, 14 June 2007.

Joint NLW Warning Munitions

1. Arms Control Compliance Assessment for Joint Non-Lethal Warning Munitions 12-Gauge and 40MM Grenades, 12 August 2008.

Optical Distractors

1. Arms Control Compliance Assessment for the B.E. Meyers "Glare" Mini-Green Laser Device (Model 532P-M), 30 January 2008.
2. Arms Control Compliance Assessment for Urgent Needs For Laser Dazzler, 12 July 2007.
3. Arms Control Compliance Assessment for the GBD-III Custom Dazzler, 10 January 2006.

NLW Arms Control Compliance Assessments

Mission Payload Module

1. Arms Control Compliance Assessment for Mission Payload Module (MPM) Spiral 1: MPM - Non-Lethal Weapon System (NLWS) Capability Development Document Version 5.0, Milestone B, 21 November 2008.
2. Arms Control Compliance Assessment for Thermobaric Payload for Mission Payload Module - Non-Lethal Munitions System, 12 November 2008.
3. Arms Control Compliance Assessment for the Mission Payload Module (MPM), Spiral 1: MPM Non-Lethal Weapons System (NLWS), 15 June 2006.

Mk19 NL Munitions

1. Arms Control Compliance Assessment for MK 19 High-Volume Rapid-Fire, Multi-Payload, Non-Lethal Munitions (NLMS), 2 April 2007.

Single Net Solution with Remote Deployment Device

1. Arms Control Compliance Assessment for Single Net Solution With Remote Deployment Device Capability Production Document, 24 July 2009.

VENOM

1. Arms Control Compliance Assessment for Non-Lethal Tube Launched Munitions System (NL/TLMS), 2 February 2006.

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TREATIES

1. Convention (IV) Respecting the Laws and Customs of War On Land and Its Annex: Regulation Concerning the Laws and Customs of War On Land. The Hague, 18 October 1907.
2. Protocol for the Prohibition of the Use of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare. Geneva, 17 June 1925.
3. Geneva Convention (I) for the Amelioration of the Condition of the Wounded and Sick in the Armed Forces in the Field. Geneva, 12 August 1949.
4. Geneva Convention (II) for the Amelioration of the Condition of the Wounded, Sick and Shipwrecked Members of Armed Forces at Sea. Geneva, 12 August 1949.
5. Geneva Convention (III) Relative to the Treatment of Prisoners of War. Geneva, 12 August 1949.
6. Geneva Convention (IV) Relative to the Protection of Civilian Persons in Time of War. Geneva, 12 August 1949.
7. Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, 10 April 1972.
8. Convention on the Prohibition of Military or any Hostile Use of Environmental Modification Techniques, 10 December 1976.
9. Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I), 8 June 1977. [The United States is not a party to this Protocol. Many of its provisions are acceptable to us as customary international law, but we strongly object to several. Most of our allies have ratified this Protocol.]
10. Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of Non-International Armed Conflicts (Protocol II), 8 June 1977. [The United States is not a party to this Protocol, but we deem most of it as customary international law. It was forwarded to the Senate for its advice and consent to ratification, but the Senate has taken no action on it.]

Additional Policy References

11. United Nations Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May be Deemed to be Excessively Injurious or to Have Indiscriminate Effects (UNCCW). Geneva, 10 October 1980.
12. UNCCW Protocol on Non-Detectable Fragments (Protocol I). Geneva, 10 October 1980.
13. UNCCW Protocol on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices (Protocol II). Geneva, 10 October 1980.
14. UNCCW Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons (Protocol III). Geneva, 10 October 1980.
15. Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction. Paris, 13 January 1993.
16. UNCCW Protocol on Blinding Laser Weapons (Protocol IV to the 1980 Convention), 13 October 1995.
17. UNCCW Protocol on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices (Protocol II, as amended on 3 May 1996, “Amended Mines Protocol”).
18. Ottawa Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction, 18 September 1997. [The United States is not a party to this Convention, but the vast majority of our allies have ratified it.]
19. Rome Statute of the International Criminal Court, 17 July 1998. [The United States is not a party to this Treaty, but it entered into force on 1 July 2002.]
20. UNCCW Protocol on Explosive Remnants of War (Protocol V), 28 November 2003.

DOMESTIC LAW

1. Biological Weapons Anti-Terrorism Act of 1989, 18 U.S.C. § 175, 2004.
2. Chemical Weapons Convention Implementation Act of 1998, div. I, title II, § 201(a), 18 U.S.C. § 229, 2004.
3. National Defense Authorization Act for FY 1996, Pub. L. No. 104-406, § 219, 110 Stat. 186, 223-224, 1995.

Additional Policy References

POLICIES AND REGULATIONS

1. DoDD 2060.1, Implementation of, and Compliance with, Arms Control Agreements, 9 January 2001, certified current as of 24 November 2003.
2. DoDD 5000.01, The Defense Acquisition System, 12 May 2003, certified current as of 20 November 2007.
3. DoDD 2311.01E, DoD Law of War Program , incorporating change 1, certified current as of 22 February 2011.
4. DoDD 3216.02, Protection of Human Subjects and Adherence to Ethical Standards in DoD-Supported Research, 25 March 2002, certified current as of 24 April 2007.
5. DoDD 5210.56, Use of Deadly Force and the Carrying of Firearms by DoD Personnel Engaged in Law Enforcement and Security Duties, 1 April 2011.
6. DoDI 6055.11, Protecting Personnel from Electromagnetic Fields, 19 August 2009.
7. CJCSI 3110.07C, Guidance Concerning Chemical, Biological, Radiological and Nuclear Defense and Employment of Riot Control Agents and Herbicides, 22 November 2006, certified current as of 21 November 2008.
8. CJCSI 3121.01B, Standing Rules of Engagement/Standing Rules for the Use of Force for US Forces, 13 June 2005, certified current as of 18 June 2008.
9. CJCSI 5810.1D, Implementation of the DoD Law of War Program, 30 April 2010.
10. Department of Health and Human Services Regulation, "Protection of Human Subjects," Title 45 CFR, pt. 46, revised January 15, 2009, effective July 14, 2009.

Section A

CP Fielded NLW

Non-Lethal Capability Sets (NLCS) and Escalation of Force-Mission Modules (EoF-MM)

NLCS and EoF-MM are packages of Commercial Off-The-Shelf (COTS) and Government Off-The-Shelf (GOTS) equipment that can be tailored for specific mission requirements. Each kit contains items, such as **protective equipment** (e.g., face shields), **mission enhancers** (e.g., spotlights), **non-lethal munitions and devices** (e.g., stingball grenade, vehicle stopping devices), and **training devices** (e.g., inert pepper spray), **vehicle inspection items** (e.g., mirrors), **checkpoint equipment** (e.g., signs). The weapons and munitions can engage targets up to 100 meters. The equipment and munitions vary in each kit based on Service-unique mission requirements and unit organizations.



NLCS and EoF-MM cont.

Protection Items

- Ballistic & Non-Ballistic Body & Face Shields and Shin Guards
- Riot Batons
- Portable Bullhorns
- High Intensity Search Lights
- Disposable Forearm/Ankle Cuffs
- Individual Pepper Spray

Training Items

- Riot Baton Training Suit
- Inert Oleoresin Capsicum (OC) Training Dispensers
- Training Stingball Grenades
- 12 Gauge Training Round



Non-Lethal Munitions

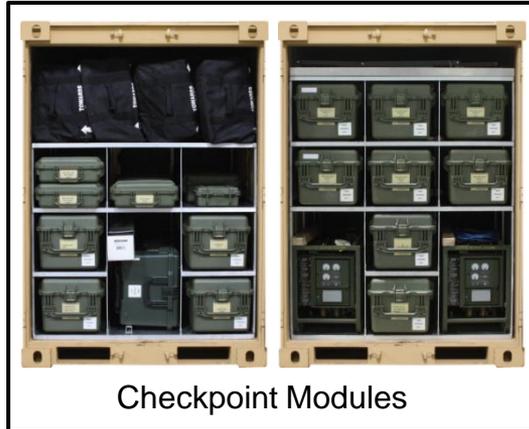
- 12 Gauge Point & Area Rounds
- 40 mm Point & Area Rounds
- Stun Grenade
- Stingball Grenade
- Modular Crowd Control Munitions
- 66 mm Smoke & RCA Grenades
- M26/X26 TASER®



Other Items

- Mid-Size OC Riot Control Dispenser
- Large OC Riot Control Dispenser
- Caltrops/Stinger Spike Strips
- Vehicle Lightweight Arresting Device
- 12 Gauge/40 mm Ammunition Pouches
- 12 Gauge Stingball Grenade Launching Cup

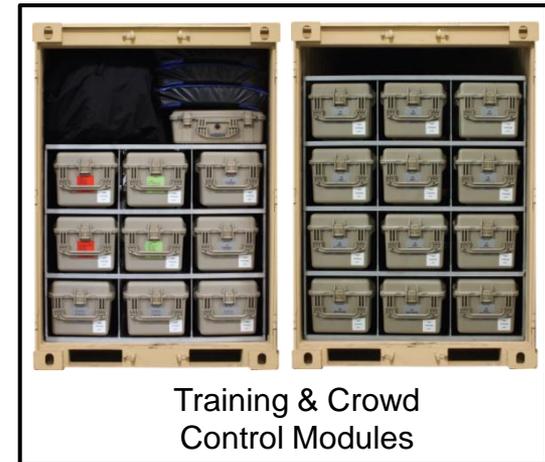
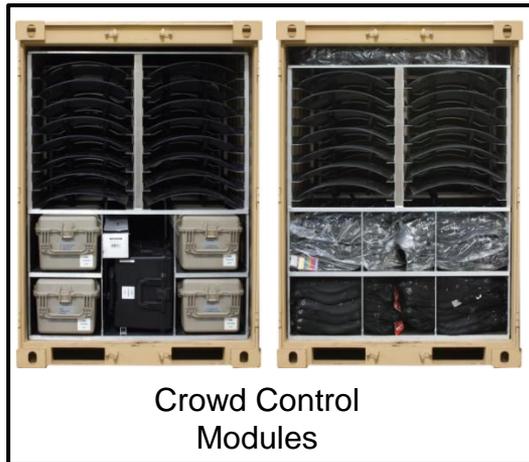
NLCS and EoF-MM cont.



EoF-MM expand upon the non-lethal concepts employed in previously fielded NLCS. EoF-MM provides commanders with an improved ability to respond to situations with varying levels of non-lethal force by way of modular capability sets that can be tailored and scaled to fit missions down to the platoon/squad level.



Equipment Groups include: Vehicle Control Point, Entry Control Point, Convoy Security, Crowd Control, Detain Personnel, Conduct Search, Clear Facilities, Conduct Cordon, Urban Patrol and Establish and Secure Perimeter.



Green Lasers



LA-9/P™



GLARE® MOUT

Currently fielded by USA, USMC, USN, and USAF:
COTS items, result of Urgent Needs Statement (UNS).
Lead Agency: USMC

Target Type: Counter-Personnel

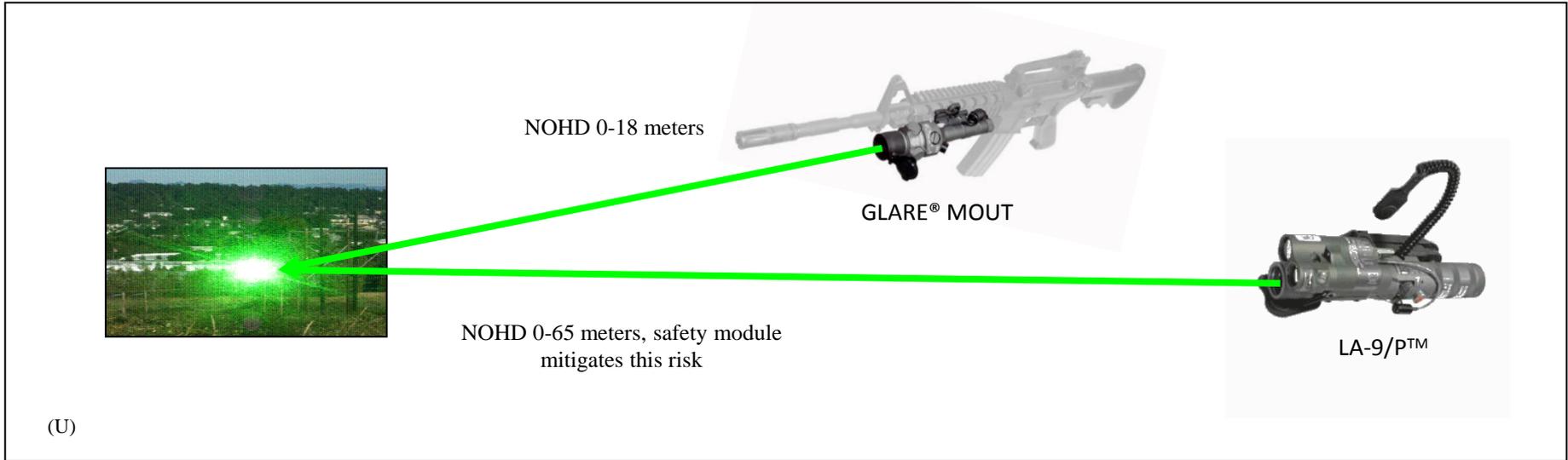
Intended Target Response: Deny access into/out of an area to individuals, move individuals through an area, and suppress individuals.

Description: The LA-9/P™ has a maximum output of 250 mW and has an integrated Safety Control Module (SCM) that shuts the beam off when an object interrupts the beam within the 0-65 m Nominal Ocular Hazard Distance (NOHD). The LA-9/P™ has a range of 65 - 1000 m. The GLARE® MOUT is smaller and has a maximum output of 125 mW and a NOHD of 18 m. The GLARE® MOUT has a range of 18 - 760 m.

Concept of Employment: Force protection, entry control points, checkpoints, and maritime ports and security zones to warn, deny, move, and suppress (e.g., distract, disorient, and degrade) individuals on foot and those operating vehicles/vessels.

Capability Effect: Ocular impairment.

(U) Green Lasers cont.



(U) Delivery Systems: Hand held, mounted on a rifle or crew served weapon.

(FOUO) Collateral Damage: Potential for eye damage if exposed within the NOHD.

(FOUO) Counter Measures: Filtering goggles.

(FOUO) Environmental Effects: Reduced effect during fog and rain. During daylight-moderate glare, no flash blindness, some afterimage.

(U) Policy Implications: See NLW Policy References (Optical Distractors).

(U) Unique Logistics: None

Acoustic Hailing Devices (AHD)



Currently fielded by USMC, USA, USAF, and USN:
COTS item.

Lead Agency: USA

Target Type: Counter-Personnel

Intended Target Response: Deny access into/out of an area to individuals, move individuals through an area, and suppress individuals.

Description: AHD provide scalable, directional warning tones or intelligible voice commands beyond 500 m.

Concept of Employment: Force protection, entry control points, patrols, convoys, crowd control operations, and other defensive and offensive operations to deny, move, and suppress (e.g., distract and disorient) individuals.

Capabilities Effect: Auditory impairment and/or intelligible audible tones.

* Medium Range Acoustic Hailing Device

** Long Range Acoustic Hailing Device

*** Magnetic Audio Device

(U) AHD cont.



(U) Delivery System: Vehicle, vessel, and ground mounted.

(FOUO) Collateral Damage: Potential for auditory damage if over-exposed at close range.

(FOUO) Counter Measures: Hearing protection (earplugs) may reduce or negate effects.

(FOUO) Environmental Effects: Wind, rain, fog, and background noise can reduce effects.

(U) Policy Implications: None

(U) Unique Logistics: None

Enhanced Underwater Loudhailer (eLOUD[®])



Currently fielded by USCG and USN: COTS item.

Lead Agency: USCG

Target Type: Counter-Personnel

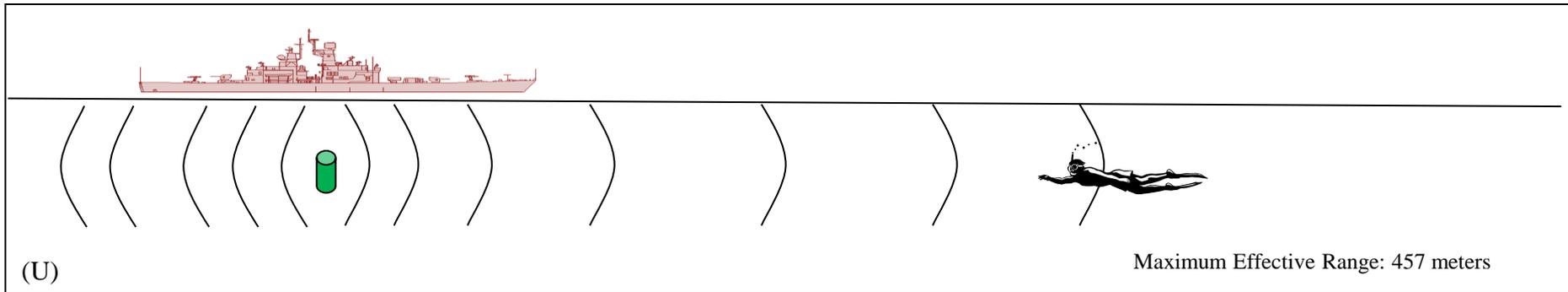
Intended Target Response: Deny access into/out of an area and suppress underwater swimmers and divers.

Description: Man portable, easy to operate unit comprised of a control unit and a 75 ft transducer cable with 8 inch transducers spaced 24 inches apart. Unit transmits intelligible commands up to 2 hours with a battery source, to a distance of 457 m and depth of 40 m.

Concept of Employment: Deployable from pier or vessel for force protection and port operations/security to prevent unauthorized underwater activities.

Capability Effect: Auditory impairment and/or intelligible audible tones.

(U) eLOUD[©] cont.



(U) **Delivery System:** Vessel and pier side delivery.

(FOUO) **Collateral Damage:** Potential for auditory damage if over exposed and potential impact on aquatic life.

(FOUO) **Counter Measures:** Neoprene wetsuit may slightly attenuate noise/effect. Hearing protection (earplugs) may reduce or negate effects.

(FOUO) **Environmental Effects:** Background noise can reduce effects (harbor/vessel engine sounds).

(U) **Policy Implications:** None

(U) **Unique Logistics:** None

X26 TASER®



Currently fielded by USMC, USN, USAF and USA:
COTS item, result of Operational Needs Statement (ONS).

Lead Agency: USA

Target Type: Counter-Personnel

Intended Target Response: Disable an individual.

Description: An electro-muscular incapacitation (EMI) device that uses a nitrogen air cartridge propulsion system to launch two probes tethered to an electrically charged cartridge. Effective range is 0-35 ft, depending on cartridge type, penetrates up to 2 inches of clothing.

Concept of Employment: Force protection and other operations that require the ability to totally disable an individual.

Capability Effect: Human electro-muscular incapacitation (i.e., the loss of voluntary muscular control by electrical stimulation).

(U) X26 TASER® cont.



(U)



(U) **Delivery System:** Handheld or weapon mounted.

(FOUO) **Collateral Damage:** Potential for injuries when individual falls, minor surface burns at probe sites, and possible ignition of flammable liquids or gas if hit by probes.

(FOUO) **Counter Measures:** Plywood or hard/shatter resistant shields.

(FOUO) **Environmental Effects:** Potential EMI to operator if discharged during heavy rain.

(U) **Policy Implications:** See NLW Policy References (Human Electro-Muscular Incapacitation Devices)

(U) **Unique Logistics:** Cartridge replacements; equipment maintenance; battery pack recharging/replacement.

FN 303[®]



Currently fielded by USA: COTS item, result of ONS.
Lead Agency: USA

Target Type: Counter-Personnel

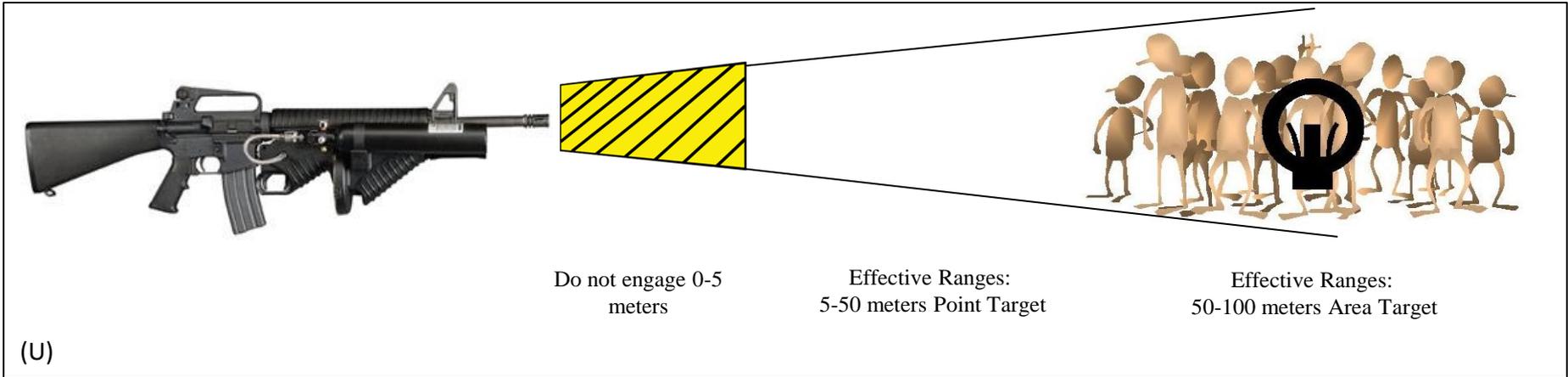
Intended Target Response: Deny access into/out of an area to individuals, move individuals through an area, and suppress individuals.

Description: The FN-303[®] is a compressed-air powered launcher designed to fire, 0.68 caliber, 8.5 gram, fin-stabilized, non-lethal projectiles. Projectiles include a training/blunt impact (propylene glycol), marking (washable-pink, permanent-yellow), and OC liquid. FN 303[®] effective range is 5-50 m for point targets and 50-100 m for area targets.

Concept of Employment: Force protection, detainee operations, crowd control, and other defensive and offensive operations.

Capability Effect: Blunt trauma, marking, irritant.

(U) FN 303[®] cont.



(U) **Delivery System:** Stand alone or mounted on a service rifle.

(FOUO) **Collateral Damage:** Potential for significant injury if engaged between 0-5 m.

(FOUO) **Counter Measures:** Blunt impact and marking rounds - plywood, aluminum or any other type of hard, shatter resistant shields. Irritant; field protective masks.

(FOUO) **Environmental Effects:** Wind, high humidity, and rain can reduce or negate the effects of irritant.

(U) **Policy Implications:** RCA restrictions exist (e.g., Treaty, Law and ROE).

(U) **Unique Logistics:** Special equipment required to refill compressed air cartridges.

66mm Light Vehicle Obscurant Smoke Systems (LVOSS) and Vehicle Launched NL Grenades (VLNLG)



Currently fielded by USA.
Lead Agency: USA

Target Type: Counter-Personnel

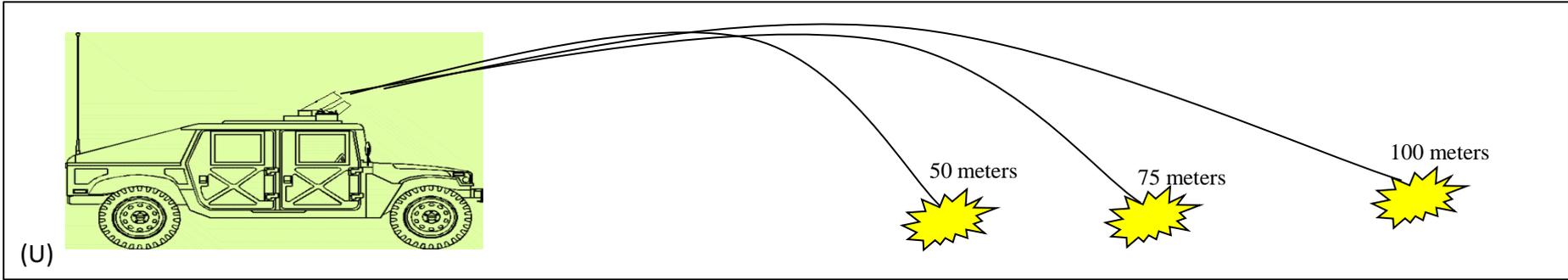
Intended Target Response: Deny access into/out of an area to individuals, move individuals through an area, and suppress individuals.

Description: A remotely fired launcher that discharges a 4 grenade single salvo which can be reloaded in <3 minutes. Each grenade weighs 0.28 lbs and contains three sub-munitions, which are the same diameter but half the length of a soda can. Smoke, RCA munitions, Flash Bang, and Blunt Trauma munitions are available. Effective range is 50 m, 75 m, and 100 m based on launch tube elevation.

Concept of Employment: Force protection, crowd control, and other defensive and offensive operations.

Capability Effect: Blunt impact, irritant, and visual obstruction (smoke).

(U) 66mm LVOSS and VLNLG cont.



(U) **Delivery System:** Vehicle; adjustable launcher mounted on vehicle turret.

(FOUO) **Collateral Damage:** Potential for eye damage from blunt trauma projectiles.

(FOUO) **Counter Measures:** For RCA rounds; Field Protective Mask. For blunt trauma round; hardened shields.

(FOUO) **Environmental Effects:** High humidity, rain, and wind can reduce or negate the effects of the RCA and smoke munitions.

(U) **Policy Implications:** RCA restrictions exist (e.g., Treaty, Law and ROE).

(U) **Unique Logistics:** None

Vehicle Non-Lethal/Tube Launched Munition System (VENOM™)



Currently fielded by USMC: Result of Urgent Universal Need Statement (UUNS).

Lead Agency: USMC

Target Type: Counter-Personnel

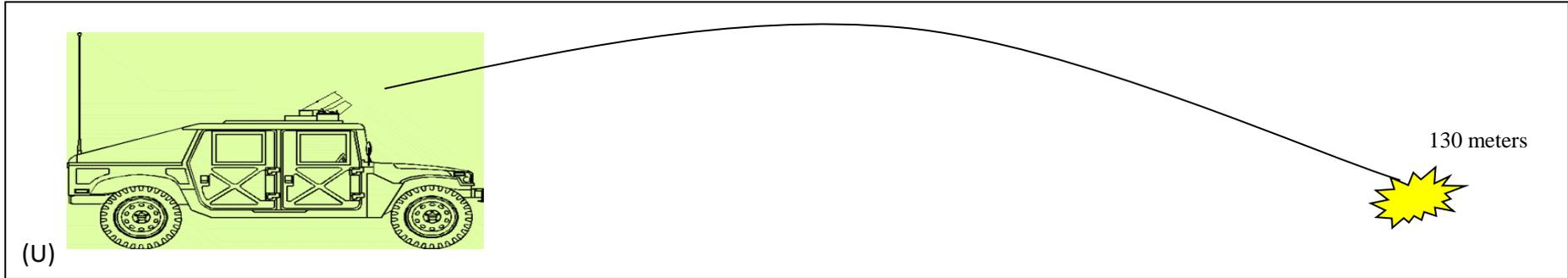
Intended Target Response: Deny access into/out of an area to individuals, move individuals through an area, and suppress individuals.

Description: The VENOM™ is a 40mm, multi-shot, electrically actuated, non-lethal munitions grenade launcher mounted to the Marine Corps Transparent Armored Gun Shield turret. The system consists of three banks of ten launch tubes, each at fixed angles of 10, 20, and 30 degrees from the horizontal, achieving 360 degree coverage. The VENOM™ fires multiple flash bang grenades out to a range of approximately 130 meters.

Concept of Employment: Mounted on a mobile platform, the weapon will used at vehicle checkpoints, at entry control points and during mobile patrols/convoys.

Capability Effect: Flash bang, ocular and auditory impairment.

(U) VENOM™ cont.



(U) Delivery System: Vehicle mounted launch tubes.

(FOUO) Collateral Damage: Potential for burns if discharged too close to target.

(FOUO) Counter Measure: None

(U) Environmental Effects: Winds may reduce distance and/or accuracy of the rounds.

(U) Policy Implications: None

(U) Unique Logistics: None

Modular Crowd Control Munition (MCCM)



Currently fielded by USA.

Lead Agency: USA

Target Type: Counter-Personnel

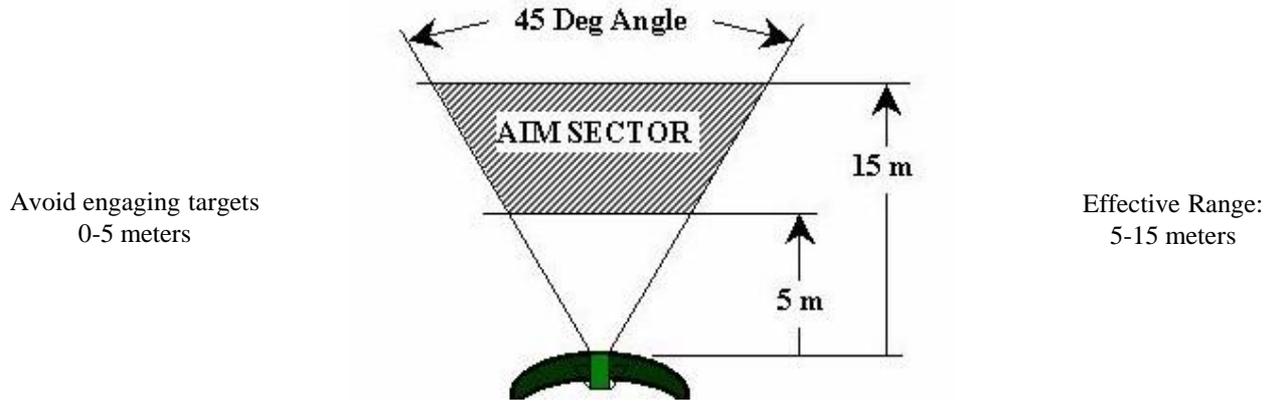
Intended Target Response: Deny access into/out of an area to individuals, and suppress individuals.

Description: The MCCM has the same dimensions as a standard Claymore Mine (8"X1.3"X3") and weighs ~ 6 lbs. Each MCCM contains 600, 0.32 Caliber Neoprene Rubber Balls held together in a Gelatin. Effective range is between 5-15 m.

Concept of Employment: Used at entry control points, for crowd control and other defensive actions.

Capability Effect: Blunt impact.

(U) MCCM cont.



(U) Delivery System: Self contained, single shot system.

(FOUO) Collateral Damage: Potential for significant injury if engaged between 0-5 m.

(FOUO) Counter Measures: Plywood, aluminum or any other type of hard, shatter resistant shields.

(U) Environmental Effects: None

(U) Policy Implications: None

(U) Unique Logistics: None

Joint Non-Lethal Warning Munitions (JNLWM)



Currently fielded by USN and USCG.
Lead Agency: USN

Target Type: Counter-Personnel

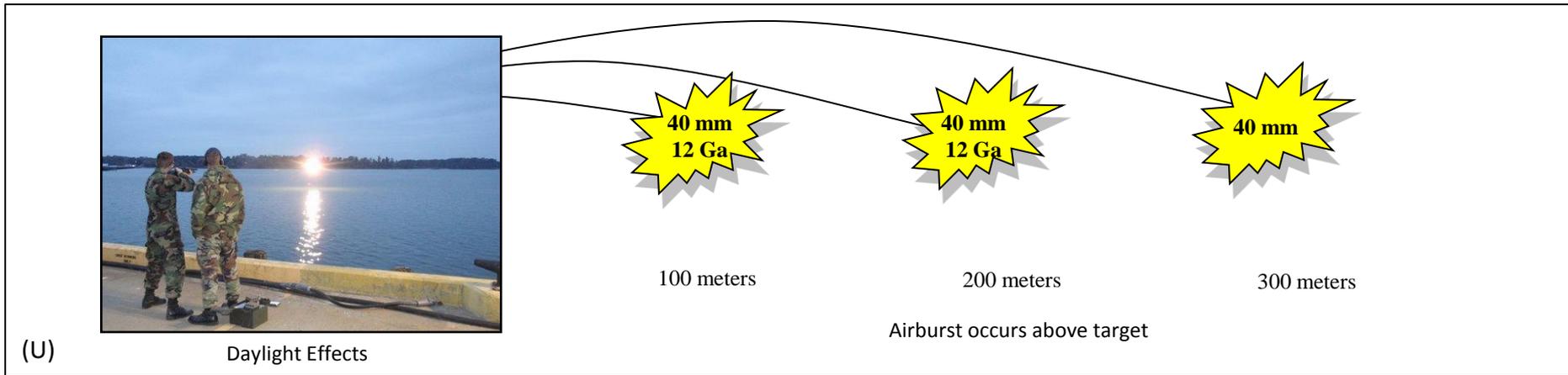
Intended Target Response: Deny access into/out of an area to individuals, move individuals through an area, and suppress individuals.

Description: Three 40mm rounds (100, 200, and 300 m) and two 12 gauge rounds (100 and 200 m). The payload is a pyrotechnic airburst flash bang.

Concept of Employment: Force protection, security operations, and port operations to warn and gain the attention of individuals. Tested by USN in Maritime environment only.

Capability Effect: Flash bang, ocular and auditory impairment.

(U) JNLWM cont.



(U) **Delivery System:** 12 gauge shotgun and handheld 40 mm grenade launchers.

(FOUO) **Collateral Damage:** Potential for eye damage or burns if discharged too close to target.

(U) **Counter Measures:** None

(FOUO) **Environmental Effects:** Winds may reduce distance and/or accuracy of the round placement.

(U) **Policy Implications:** None

(U) **Unique Logistics:** None

Stingball Grenade



Currently fielded by USA, USMC, USN, and USAF.
Lead Agency: USMC

Target Type: Counter-Personnel

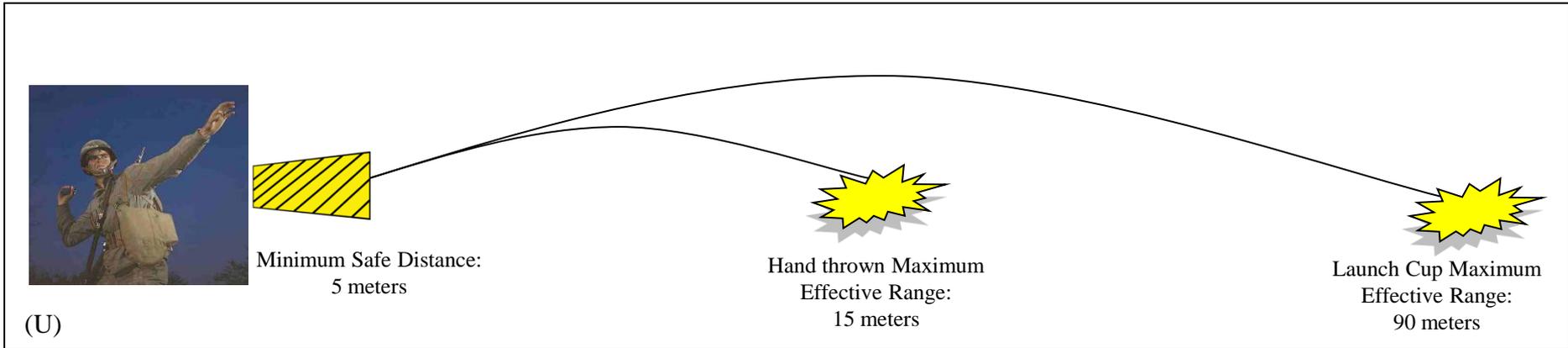
Intended Target Response: Deny access into/out of an area to individuals, move individuals through an area, and suppress individuals.

Description: The cartridge consists of a fuse, a separating fuse body, a black powder separation charge, a pressed black powder delay, a bursting charge of flash powder, at least 100 rubber pellets, and a rubber grenade body. It can be hand thrown or launched from the 12 gauge launching cup.

Concept of Employment: The rubber ball hand grenade is used to clear rooms and closed-in spaces and to break up unruly crowds by dissuading, disrupting, or delaying their actions.

Capability Effect: Blunt impact.

(U) *Stingball Grenade cont.*



(U) **Delivery System:** Hand thrown or 12 gauge launch cup.

(FOUO) **Collateral Damage:** Potential for significant injury if the grenade denotes at face level.

(FOUO) **Counter Measures:** Plywood, aluminum or any other type of hard, shatter resistant shields.

(U) **Environmental Effects:** None

(U) **Policy Implications:** None

(U) **Unique Logistics:** None

CP Prototype NLW

Active Denial System (ADS) 1 & 2



System 1



System 2

Status: Prototype
Lead Agency: JNLWD

Target Type: Counter-Personnel

Intended Target Response: Deny access into/out of an area to individuals, move individuals through an area, and suppress individuals.

Description: Long range, directed energy, vehicle mounted system that projects an invisible electromagnetic millimeter-wave energy beam beyond small arms range.

Concept of Employment: Force protection, entry control points, and other offensive and defensive operations.

Capability Effect: Heat sensation causing involuntary movement away from the beam.

(U) ADS 1 & 2 cont.



(U)



Heat Effect to Individuals

(U) **Delivery System:** Vehicle or ground mounted.

(FOUO) **Collateral Damage:** Potential for minor burns if over exposed.

(FOUO) **Counter Measures:** Cover and barriers, such as walls/buildings.

(FOUO) **Environmental Effects:** Rain and humidity may degrade effects.

(U) **Policy Implications:** See NLW Policy References (Active Denial System).

(U) **Unique Logistics:** None

Distributed Sound and Light Array (DSLAs)



Status: Prototype
Lead Agency: JNLWD

Target Type: Counter-Personnel

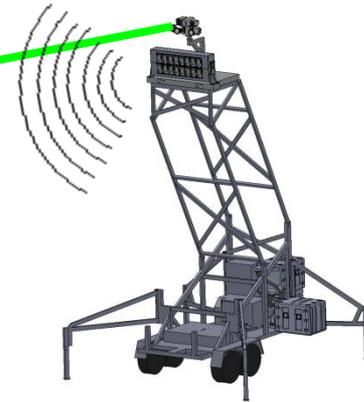
Intended Target Response: Deny access into/out of an area to individuals, move individuals through an area, and suppress individuals.

Description: DSLA uses a combined laser, non-coherent light, and acoustics to produce a synergistic engagement system.

Concept of Employment: Hail, warn, and/or deter individuals and vehicle operators from approaching entry control points, mobile patrols/convoys, and vehicle checkpoints.

Capability Effect: Optical and auditory impairment and/or intelligible audible tones.

(U) DSLA cont.



(U) Delivery Systems: Vehicle, trailer, or ground mounted.

(FOUO) Collateral Damage: Potential for eye damage if exposed within Nominal Ocular Hazard Distance and potential for auditory damage if over exposed at close range.

(FOUO) Counter Measures: Filtering goggles and hearing protection (earplugs) may reduce or negate effects.

(FOUO) Environmental Effects: Reduced effect during wind, fog, and rain. During daylight-moderate glare, no flash blindness, some afterimage.

(U) Policy Implications: See NLW Policy References (Optical Distractors).

(U) Unique Logistics: None

Intentionally Blank

CP Developmental NLW

Improved Flash Bang Grenade (IFBG)



Anticipated Fielding: FY13

Status: Development

Lead Agency: USSOCOM

Target Type: Counter-Personnel

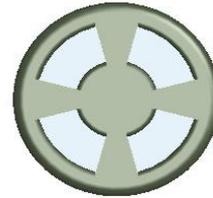
Intended Target Response: Deny access into/out of an area to individuals, move individuals through an area, and suppress individuals.

Description: A safer hand-employed flash-bang grenade with greater light output, increased duration of flash-blindness (5 second threshold/10 second objective), debilitating sound pressure levels (140 dBA threshold/143 dBA objective) and environmentally safe.

Concept of Employment: Force protection, crowd control, entry control points, assist in clearing spaces, and in other defensive and offensive operations.

Capability Effect: Flash bang, ocular and auditory impairment.

(U) IFBG cont.



Venting
(Bottom View)



Venting
(Top View)



(U)

(U) **Delivery System:** Hand Thrown.

(FOUO) **Collateral Damage:** Potential for burns if discharged too close to target. Potential fire hazard.

(U) **Counter Measures:** None

(U) **Environmental Effects:** None

(U) **Policy Implications:** None

(U) **Unique Logistics:** None

XM116 12 Gauge Non-Lethal Extended Range Marking Munition



Anticipated Fielding: TBD
Status: Developmental
Lead Agency: USA Service Unique

Target Type: Counter-Personnel

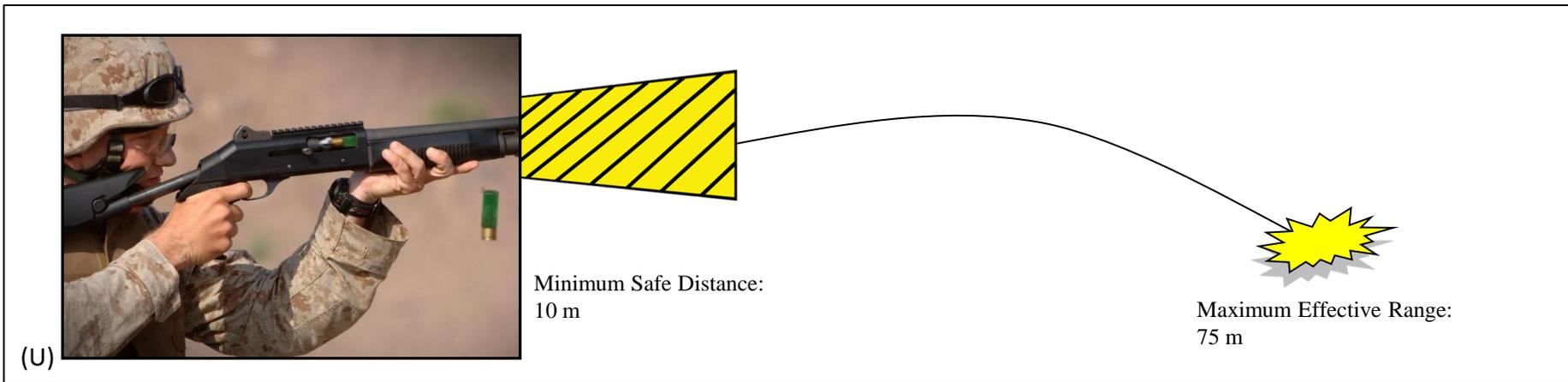
Intended Target Response: Deny access into/out of an area to individuals, move individuals through an area, and suppress individuals.

Description: XM1116 provide increased range from current 12 gauge Non-Lethal blunt impact munitions along with a marking capability.

Concept of Employment: Force protection, checkpoints, dismounted patrols, convoys, crowd control, and other defensive and offensive missions.

Capability Effect: Blunt trauma, marking.

(U) XM116 12 Gauge Non-Lethal Extended Range Marking Munitions cont.



(U) **Delivery System:** 12 gauge shotgun.

(FOUO) **Collateral Damage:** Potential for significant injury if engaged between 0-10 m.

(FOUO) **Counter Measures:** Plywood, aluminum or any other type of hard, shatter resistant shields.

(FOUO) **Environmental Effects:** None

(U) **Policy Implications:** None

(U) **Unique Logistics:** None

XM1112 Airburst Non-Lethal Munitions (ANLM)



Anticipated Fielding: FY12

Status: Developmental

Lead Agency: USA

Target Type: Counter-Personnel

Intended Target Response: Deny access into/out of an area to individuals, move individuals through an area, and suppress individuals.

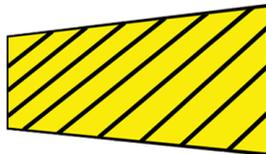
Description: 40 mm round with a fuel enriched pyrotechnic payload, proximity air burst, and settable delay option fuse. The maximum effective range is 150 m threshold/350 m objective. Minimum safe distance is 35 m threshold/15 m objective. Duration of effect is 30 second threshold/60 second objective.



Concept of Employment: Payload is dispensed 5 m above target to provide force protection, crowd control, patrols/convoys, area clearing/denial, and other offensive and defensive operations.

Capability Effect: Flash bang, ocular and auditory impairment, and/or thermal heating.

(U) XM1112 ANLM cont.



Minimum Safe Distance:
35 meters (T) /15 meters (O)



Maximum Effective Range:
150 meters (T)/350 meters (O)

(U)

(U) **Delivery System:** Handheld 40mm Grenade launchers.

(FOUO) **Collateral Damage:** Potential for eye damage or burns if discharged to close to target.

(U) **Counter Measures:** None

(U) **Environmental Effects:** None

(U) **Policy Implications:** None

(U) **Unique Logistics:** None

Ocular Interruption (OI)



Warning



Suppression

Anticipated Fielding: FY14
Status: Developmental
Lead Agency: USMC Service Unique

Target Type: Counter-Personnel

Intended Target Response: Deny access into/out of an area to individuals, move individuals through an area, and suppress individuals.

Description: A light emitting, non-damaging, eye-safe device to warn (primary) and suppress (secondary) individuals with 10-500 m standoff. This device will be a visible laser or high powered broad band lamp designed to maximize range while minimizing nominal ocular hazard distance.

Concept of Employment: Escalation of force continuum options during force protection, entry control points, checkpoints, convoys, and maritime ports and security zones.

Capability Effect: Optical impairment.

(U) OI cont.



(U) **Delivery Systems:** Handheld or weapon mounted.

(FOUO) **Collateral Damage:** Potential for eye damage if exposed within Nominal Ocular Hazard Distance.

(FOUO) **Counter Measures:** Filtering goggles.

(FOUO) **Environmental Effects:** Reduced effect during daylight, fog, and rain. During daylight-moderate glare, no flash blindness, some afterimage.

(U) **Policy Implications:** See NLW Policy References (Optical Distractors).

(U) **Unique Logistics:** None

Green Laser Interdiction System (GLIS)



Anticipated Fielding: FY12

Status: Developmental

Lead Agency: USA Service Unique

Target Type: Counter-Personnel

Intended Target Response: Deny access into/out of an area to individuals, move individuals through an area, and suppress individuals.

Description: The GLIS is a rifle-mounted/hand-held laser that allows interdiction of potential hostile actions through non-lethal effects and interchangeable between host weapon platforms. Effective non-lethal means to inform civilians they are approaching military operations with visible effects 0-300 m.

Concept of Employment: Force protection, entry control points, checkpoints, and maritime ports and security zones to warn, deny, move, and suppress (e.g., distract, disorient, and degrade) individuals on foot and those operating vehicles/vessels.

Capability Effect: Ocular impairment.

(U) GLIS cont.



(U)

(U) **Delivery Systems:** Handheld, mounted on a rifle or crew served weapon.

(FOUO) **Collateral Damage:** Potential for eye damage if exposed within the NOHD.

(FOUO) **Counter Measures:** Filtering goggles.

(FOUO) **Environmental Effects:** Reduced effect during fog and rain. During daylight - moderate glare, no flash blindness, some afterimage.

(U) **Policy Implications:** See NLW Policy References (Optical Distractors).

(U) **Unique Logistics:** None

Long Range Ocular Interruption (LROI)



Anticipated Fielding: TBD

Status: Developmental

Lead Agency: USN

Target Type: Counter-Personnel

Intended Target Response: Deny access into/out of an area to individuals, move individuals through an area, and suppress individuals.

Description: Optical interruption device delivering a visible spectrum, non-lethal, long range, reversible effect for counter-personnel applications for hailing, warning, and suppression in protection of Military High Value Assets (HVAs). LROI will manage NOHD at various ranges and have an effective range up to 3000 m.

Concept of Employment: Escalation of force continuum options during force protection, entry control points, checkpoints, convoys, and maritime ports and security zones.

Capability Effect: Optical impairment.

(U) LROI cont.



(U) Delivery Systems: TBD

(FOUO) Collateral Damage: Potential for eye damage if exposed within NOHD.

(FOUO) Counter Measures: Filtering goggles.

(FOUO) Environmental Effects: Reduced effect during daylight, fog, and rain. During daylight-moderate glare, no flash blindness, some afterimage.

(U) Policy Implications: See NLW Policy References (Optical Distractors).

(U) Unique Logistics: None

Improved Acoustic Hailing Device (IAHD)



Anticipated Fielding: FY12

Status: Developmental

Lead Agency: USA

Target Type: Counter-Personnel

Intended Target Response: Deny access into/out of an area to individuals, move individuals through an area, and suppress individuals.

Description: A long range hailing and warning device capable of producing directional sound beams to project warning tones and improved intelligible voice commands with background noise present at the target's location. Maximum Effective Range is 300 m threshold/1000 m objective.

Concept of Employment: Force protection, convoys, checkpoints, port operations to warn/hail individuals.

Capabilities Effect: Auditory impairment and/or intelligible audible tones.

(U) IAHD cont.



(U) **Delivery System:** Vehicle, vessel, or ground mount.

(FOUO) **Collateral Damage:** Potential for auditory damage if over exposed at close range.

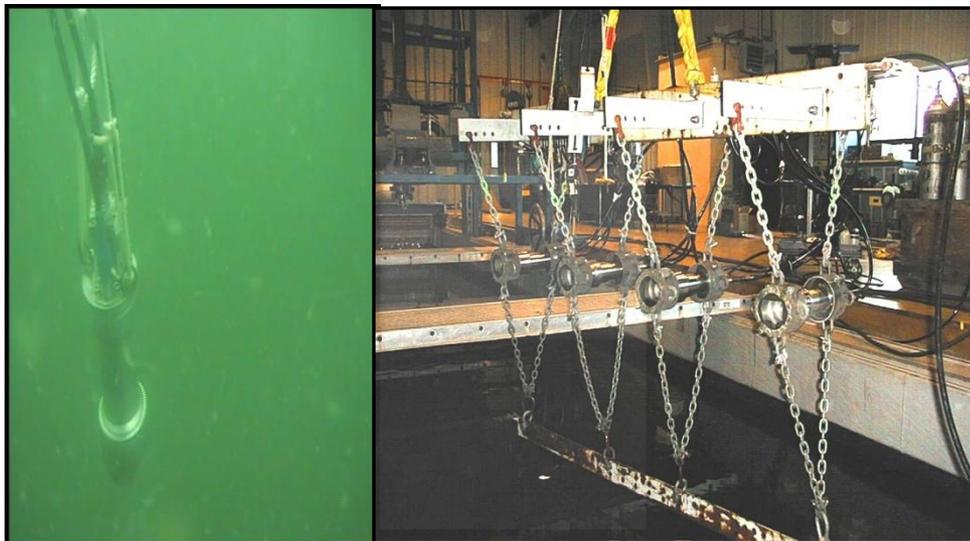
(FOUO) **Counter Measures:** Hearing protection (earplugs) may reduce or negate effects.

(FOUO) **Environmental Effects:** Wind, rain, and fog can reduce effects.

(U) **Policy Implications:** None

(U) **Unique Logistics:** None

Subsurface Non-Lethal Engagement - Impulse Swimmer Gun



Anticipated Fielding: TBD

Status: Developmental

Lead Agency: USN

Target Type: Counter-Personnel

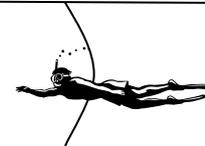
Intended Target Response: Deny access into/out of an area and suppress underwater swimmers and divers.

Description: A tethered transducer cable connected to a control unit and an air gun and spark gap generator that emits a directional, underwater pulsed sound wave. Weight is 50 lbs and effective range is between 0-150 m.

Concept of Employment: Force protection, port security to prevent unauthorized underwater activities.

Capability Effect: Auditory impairment and/or nausea.

(U) Subsurface Non-Lethal Engagement - Impulse Swimmer Gun cont.



(U)

No minimum safe engagement range

Maximum Effective Range: 150 meters

(U) **Delivery System:** Deployed from pier side.

(FOUO) **Collateral Damage:** Potential for auditory damage if over exposed at close range and impact on aquatic life.

(FOUO) **Counter Measures:** Neoprene wetsuit may slightly attenuate noise/effect.

(FOUO) **Environmental Effects:** Background noise (harbor/boat engine noise) can reduce effects.

(U) **Policy Implications:** None

(U) **Unique Logistics:** None

MK19 Non-Lethal Munition



Anticipated Fielding: TBD

Status: Developmental

Lead Agency: TBD

Target Type: Counter-Personnel

Intended Target Response: Deny access into/out of an area to individuals, move individuals through an area, and suppress individuals.

Description: The round is the same diameter but longer than the High Explosive MK19 40mm round and uses a telescoping cartridge to launch Ring Air-Foil Projectiles. Effective range is between 10-100 m. Duration of effect is 30 second threshold/60 second objective.

Concept of Employment: Force protection, checkpoints, patrols/convoys, crowd control, and other defensive and offensive missions.

Capability Effect: Blunt trauma.

(U) MK19 Non-Lethal Munition cont.



(U)



Avoid engaging targets
0-10 meters



Maximum Effective Range: 100 meters

(U) **Delivery System:** Vehicle or ground mounted.

(FOUO) **Collateral Damage:** Potential for significant injury if engaged between 0-10 m.

(FOUO) **Counter Measures:** Heavy clothing or plywood/aluminum, or any other type of hard/shatter resistant shields.

(U) **Environmental Effects:** None

(U) **Policy Implications:** None

(U) **Unique Logistics:** None

40mm Human Electro-Muscular Incapacitation (HEMI) Projectile



Anticipated Fielding: TBD

Status: Developmental

Lead Agency: JNLWD

Target Type: Counter-Personnel

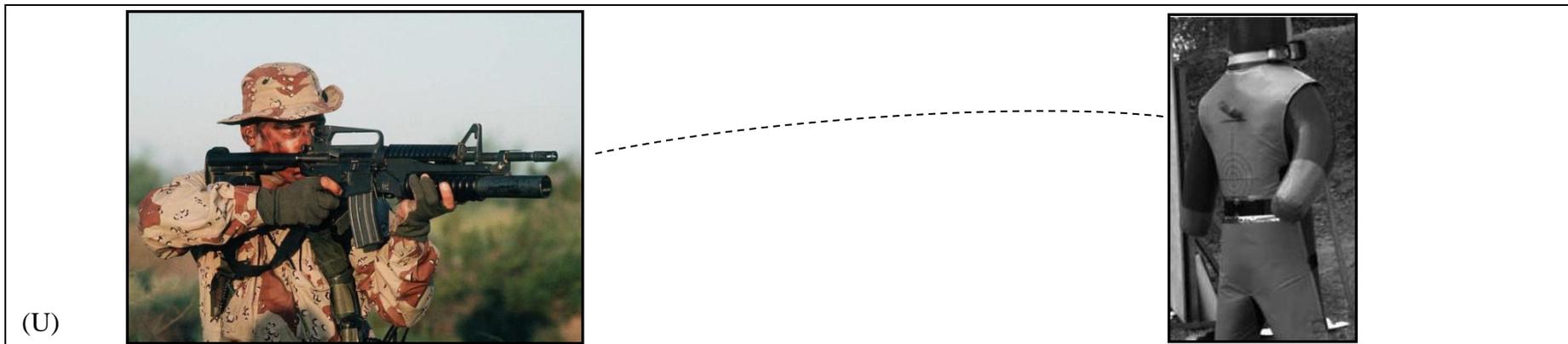
Intended Target Response: Disable individuals.

Description: A 40 mm, non-tethered HEMI munition with increased distance over currently available tethered devices from 10-100 m threshold and 10-250 m objective, with 30 second threshold and 3 minute objective duration. Related efforts are Harbinger and Disable Point Target programs.

Concept of Employment: Force protection, entry control points, crowd control, patrols, and other defensive and offensive operations.

Capability Effect: Human electro-muscular incapacitation (i.e., the loss of voluntary muscular control by electrical stimulation).

(U) 40mm HEMI Projectile cont.



(U) **Delivery System:** M203 and M320 Grenade launchers.

(FOUO) **Collateral Damage:** Potential for injuries when individual falls, minor surface burns at probe sites, and possible ignition of flammable liquids or gas if hit by probes.

(FOUO) **Counter Measure:** Hard/shatter resistant shields.

(U) **Environmental Effects:** None

(U) **Policy Implications:** See NLW Policy References (Human Electro-Muscular Incapacitation Devices).

(U) **Unique Logistics:** None

Mission Payload Module Non-Lethal Weapon System (MPM NLWS)



Anticipated Fielding: FY16

Status: Developmental

Lead Agency: USMC

Target Type: Counter-Personnel

Intended Target Response: Deny access into/out of an area to individuals, move individuals through an area, and suppress individuals.

Description: A vehicle mounted, multiple tube launcher providing selective, scalable, non-lethal effects. Munitions are expected to reach greater ranges and have a broader area coverage. Maximum effective range is 150 m threshold/500 m objective.

Concept of Employment: Mounted on a mobile platform, the weapon will provide force protection at checkpoints, during mobile patrols/convoys, and control crowds.

Capability Effect: Flash bang, ocular and auditory impairment, and/or thermal heating.

(U) MPM NLWS cont.



(U)

(U) **Delivery System:** Vehicle mounted launch tubes.

(FOUO) **Collateral Damage:** Potential for significant injury with blunt trauma munitions if engaged within minimum safe ranges of 30 m threshold/10 m objective.

(FOUO) **Counter Measure:** Hard/shatter resistant shields.

(U) **Environmental Effects:** None

(U) **Policy Implications:** None

(U) **Unique Logistics:** None

(U) 40mm Red, White, and Blue Star Cluster



(U) **Anticipated Fielding:** FY13

(U) **Status:** Developmental

(U) **Lead Agency:** JNLWD

(U) **Target Type:** Counter-Personnel

(U) **Intended Target Response:** Hail and Warn/Cease Fire

(U) **Description:** A modified, currently fielded, M585 40mm white star cluster round. The modification consists of replacing the 5 star white cluster payload with a red, white, and blue display.

(FOUO) **Concept of Employment:** Provide US ground forces a lightweight, distinct, minimal muzzle signature capability to hail and warn a perceived friendly unit to prevent blue on blue or blue on green fratricide. The use of this distinct hail and warn signal is dependant upon a strategic communication effort among coalition military forces, security organizations, and law enforcement agencies.

(U) **Capability Effect:** Identify presence of a US force and warn a blue or green force to cease fire.

(U) 40mm Red, White, and Blue Star Cluster cont.



(U)

(U) Delivery System: Handheld 40mm Grenade launchers.

(FOUO) Collateral Damage: Potential to cause a fire.

(U) Counter Measures: None

(U) Environmental Effects: None

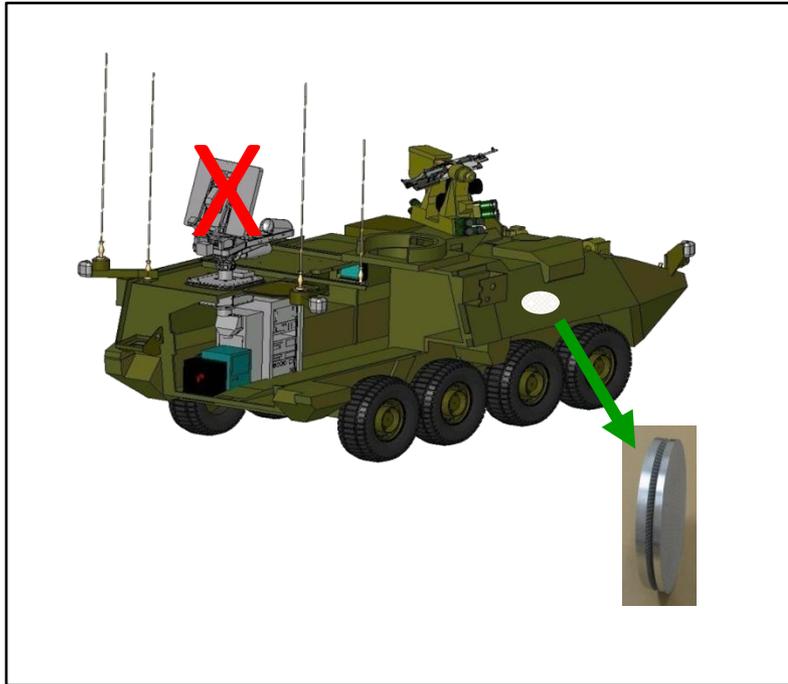
(U) Policy Implications: None

(U) Unique Logistics: None

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CP Conceptual NLW

Compact Active Denial Technologies (ADT)



Status: Conceptual

Lead Agency: JNLWD

Target Type: Counter-Personnel

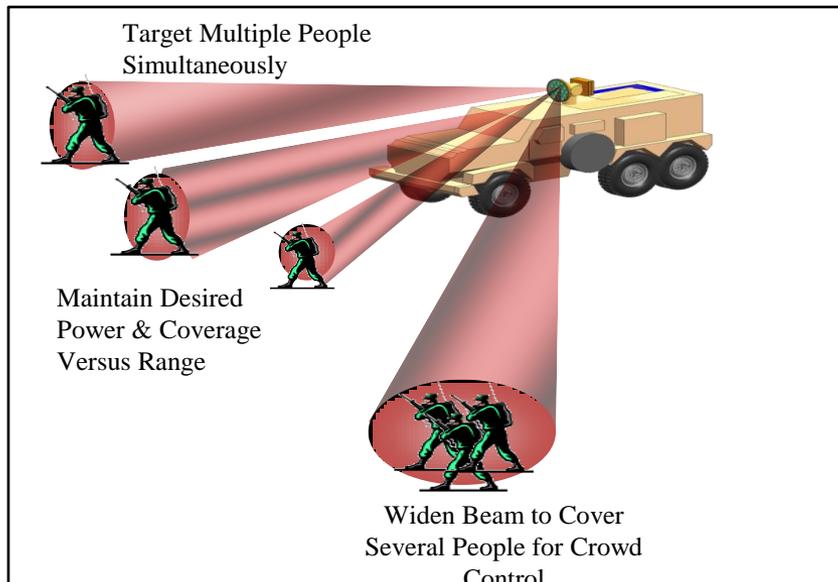
Intended Target Response: Deny access into/out of an area to individuals, move individuals through an area, and suppress individuals.

Description: A next generation tube-based ADT system that will drastically reduce size, weight, cost, and allow for instant “turn-on” and “shoot-on-the-move” capabilities.

Concept of Employment: Force protection, crowd control, patrols/convoys, and other defensive and offensive operations.

Capability Effect: Heat sensation causing involuntary movement away from the beam.

Solid State Active Denial Technology (ADT)



Status: Conceptual
Lead Agency: USA

Target Type: Counter-Personnel

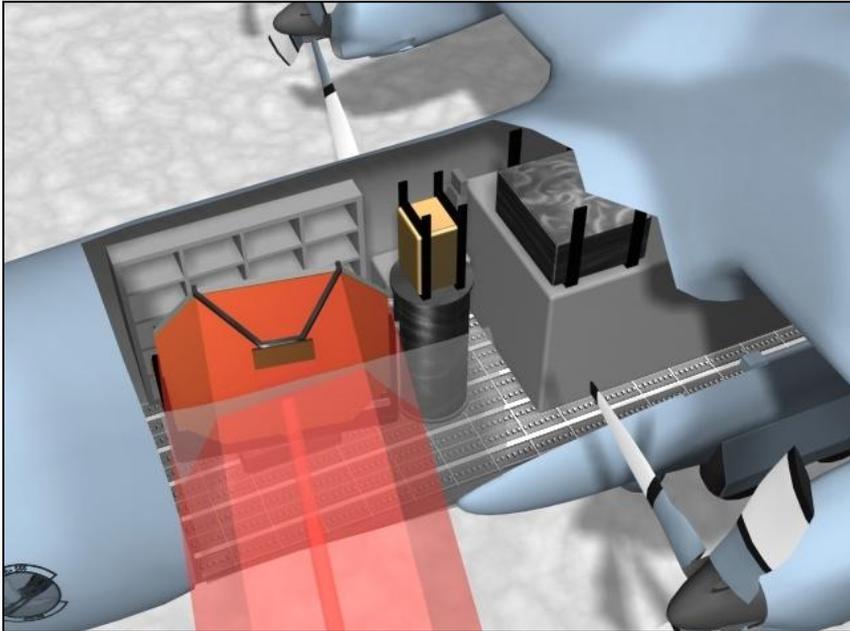
Intended Target Response: Deny access into/out of an area to individuals, move individuals through an area, and suppress individuals.

Description: Solid state will yield a more compact system by combining the functionality of the existing ADT gyrotron, antenna, sub-reflector, and beam transport into a single unit that will drastically reduce size, weight, and cost.

Concept of Employment: Force protection, crowd control, detainee operations, patrols/convoys, building clearing, and other offensive and defensive operations.

Capability Effect: Heat sensation causing involuntary movement away from the beam.

Airborne Active Denial



Status: Conceptual

Lead Agency: USAF Service Unique

Target Type: Counter-Personnel

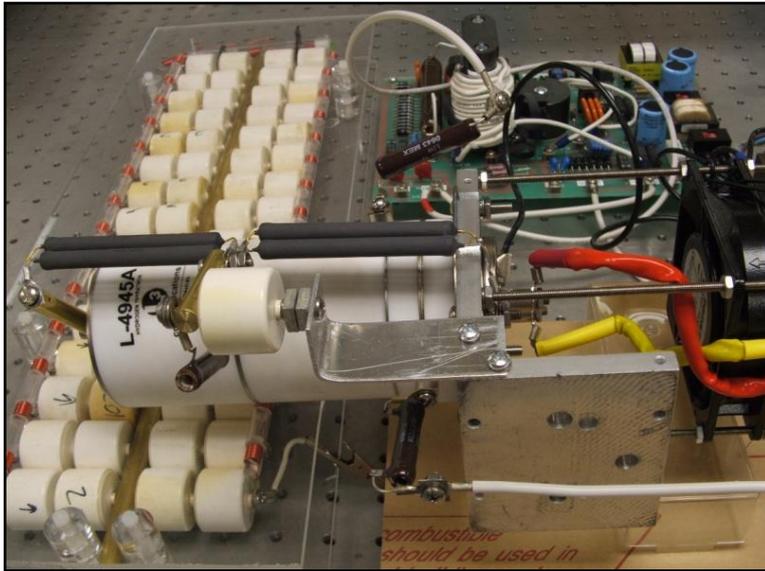
Intended Target Response: Deny access into/out of an area to individuals, move individuals through an area, and suppress individuals.

Description: Directed energy system on a fixed-wing platform with operationally significant range and standoff.

Concept of Employment: Force protection, crowd control, detainee operations, patrols/convoys, building clearing, and other offensive and defensive operations.

Capability Effect: Heat sensation causing involuntary movement away from the beam.

Nano-second Electrical Pulses



Status: Conceptual
Lead Agency: JNLWD

Target Type: Counter-Personnel

Intended Target Response: Disable individuals.

Description: An electrical waveform, with the potential to substantially increase the duration of disabling effects compared to existing HEMI capabilities.

Concept of Employment: Force protection, crowd control, detainee operations, patrols/convoys, building clearing, and other offensive and defensive operations.

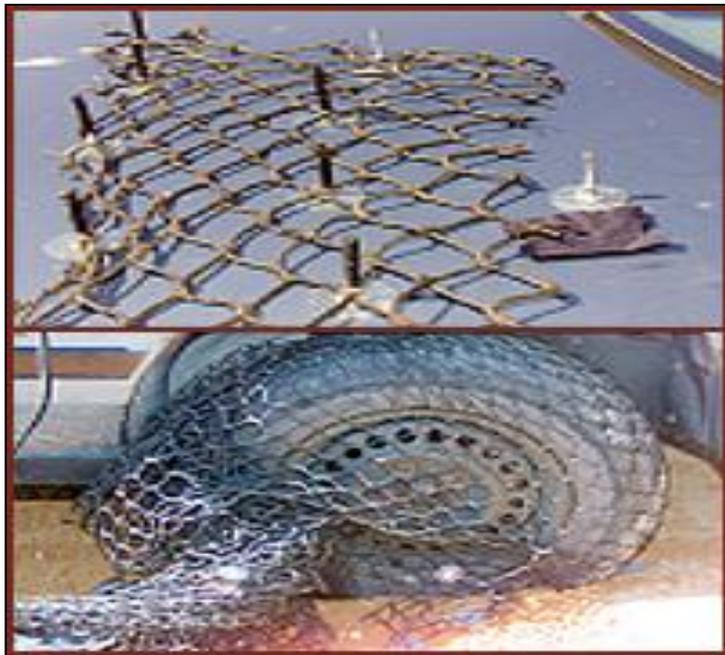
Capability Effect: Electro-muscular incapacitation (i.e., the loss of voluntary muscular control by electrical stimulation).

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Section B

CM Fielded NLW

M2 Vehicle Lightweight Arresting Device (VLAD)



Currently fielded by USMC and USA.

Lead Agency: USA

Target Type: Counter-Materiel

Intended Target Response: Stop a vehicle.

Description: The VLAD is a man portable, pre-emplaced expandable spiked vehicle stopping net that can be deployed in less than one minute, covers up to an 18 ft wide road, and weighs 45 lbs. The barbed spikes on the leading edge of the net pierce the front tires and wrap around the tires bringing the vehicle to a stop, and minimizing significant injuries to personnel and damage to the vehicle.

Concept of Employment: Force protection at vehicle checkpoints and road blocks to stop vehicles.

Capability Effect: Entanglement of front tires to stop wheeled vehicles of weights up to 5,500 lbs, traveling at 30 mph, within 200 ft.

(U) M2 VLAD cont.



(U)

(U) **Delivery System:** Self contained, one time use.

(FOUO) **Collateral Damage:** Flat tires, possible brake and axle damage, minor scrapes to vehicle; potential for injury to vehicle occupants not wearing a seat belt.

(FOUO) **Counter Measures:** Evasive maneuvering.

(U) **Environmental Effects:** None

(U) **Policy Implications:** None

(U) **Unique Logistics:** Materials Handling Equipment (MHE), tow truck, or other means to move vehicle and avoid blocking/delaying traffic, and wire cutters are needed to remove the net.

Portable Vehicle Arresting Barrier (PVAB)



**Currently fielded by USMC and USA.
Lead Agency: USA**

Target Type: Counter-Materiel

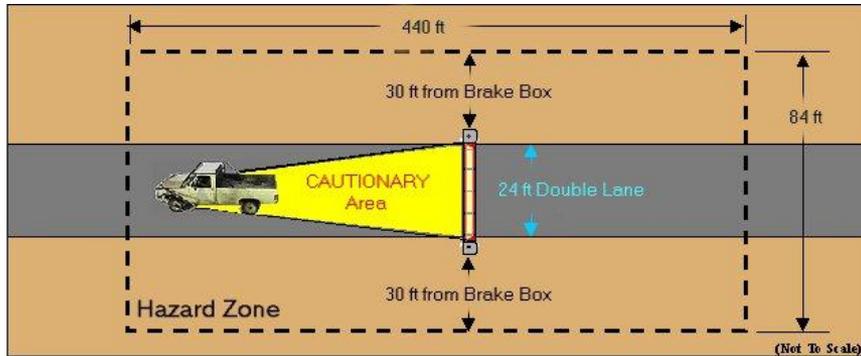
Intended Target Response: Stop a vehicle.

Description: The PVAB is a transportable, pre-emplaced, reusable vehicle stopping net capable of stopping wheeled vehicles of up to 7,500 lbs in a controlled manner. It weighs 600 lbs and can cover up to a 24 ft wide road. It can be emplaced or reset/reused by a 3-man team in less than 2 hours. While emplaced in standby mode vehicle traffic is unimpeded. The device is capable of changing from standby to capture mode within 2 seconds.

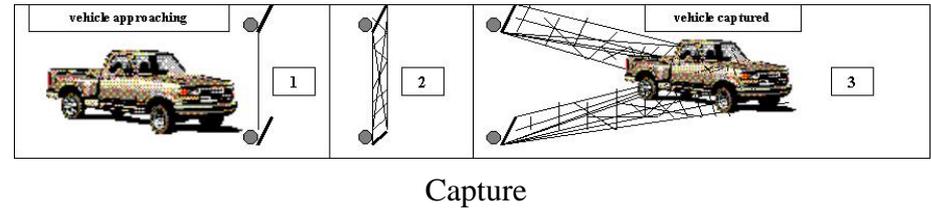
Concept of Employment: Force protection at vehicle checkpoints to stop vehicles.

Capability Effect: Captures and stops a 7,500 lbs wheeled vehicle traveling up to 45 mph, within 200 ft.

(U) PVAB cont.



(U)



(U) **Delivery System:** Self-contained, re-usable device.

(FOUO) **Collateral Damage:** Potential injury to vehicle occupants not wearing a seat belt.

(FOUO) **Counter Measures:** Evasive maneuvering.

(U) **Environmental Effects:** None

(U) **Policy Implications:** None

(U) **Unique Logistics:** May require Materials Handling Equipment (MHE), tow truck, or other means to move vehicle to avoid blocking/delaying traffic.

Running Gear Entanglement System (RGES)



Side Launched



Shoulder Launched

Currently fielded by USCG.
Lead Agency: USCG

Target Type: Counter-Materiel

Intended Target Response: Stop a vessel.

Description: A compressed air launched net 100 ft long made of 7/16 inch spectra rope with tied, weighted loops. It weighs 35 lbs and takes up 3 cubic ft for movement and storage. Device can be side-launched or shoulder launched from vessels or piers.

Concept of Employment: Stop a small waterborne propeller-driven craft by launching the RGES in front of a target watercraft to entangle propellers. The RGES can be fixed to provide a static barrier to maintain standoff for vessels at anchor or pier side and shore facilities.

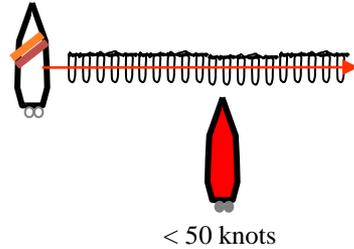
Capability Effect: Stops propeller propulsion of vessels up to 250 hp, traveling up to 50 knots by entangling propeller.

(U) RGES cont.



Shoulder-Launched RGES

(U)



Must be deployed in front of target vessel



Deployed RGES



Side-Launched RGES

(U) **Delivery System:** Single deployment, surface-launched system is deployed using compressed air.

(FOUO) **Collateral Damage:** Potential injury to vessel occupants and damage to propeller.

(FOUO) **Counter Measures:** Evasive maneuvers.

(FOUO) **Environmental Effects:** High winds and high sea states can reduce effectiveness.

(U) **Policy Implications:** Foreign port restrictions may apply.

(U) **Unique Logistics:** May require another vessel to tow disabled/stopped vessel.

Intentionally Blank

CM Prototype NLW

Pre-emplaced Electric Vehicle Stopper (PEVS)



Status: Prototype
Lead Agency: JNLWD

Target Type: Counter-Materiel

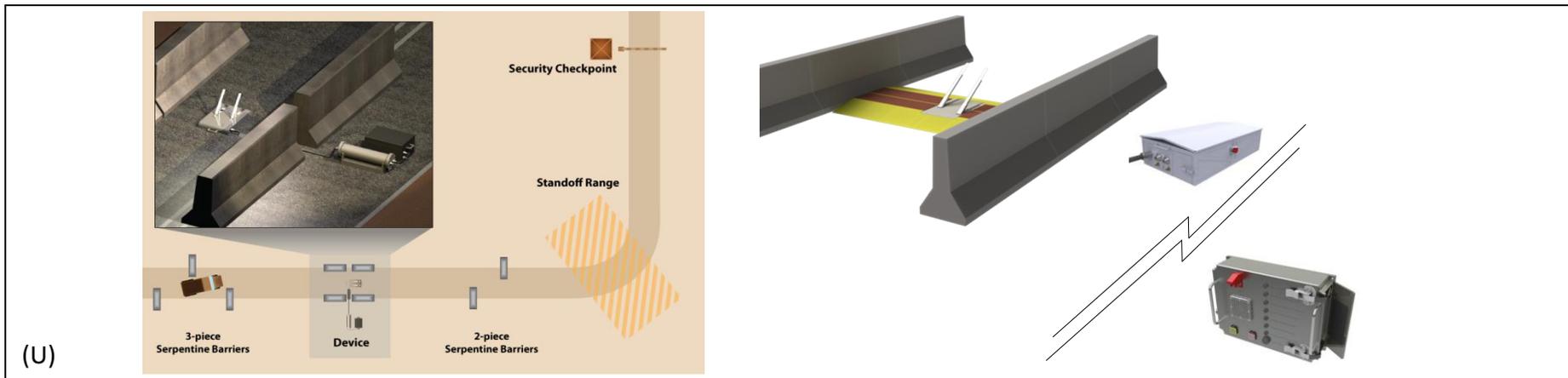
Intended Target Response: Stop and disable vehicles.

Description: A pre-emplaced, non-intrusive device that provides an electrical pulse through deployed contacts to shutdown power train electrical circuits or components.

Concept of Employment: Force protection at vehicle checkpoints to stop vehicles and most effective when used in concert with barrier or entanglement system to slow vehicle momentum.

Capability Effect: Disrupts vehicle electrical components to cause the engine to stall.

(U) PEVS cont.



(U)

(U) **Delivery System:** Self contained, reusable device.

(FOUO) **Collateral Damage:** Possible permanent damage to target electrical system.

(FOUO) **Counter Measures:** Shielding or hardening of equipment.

(FOUO) **Environmental Effects:** None

(U) **Policy Implications:** None

(U) **Unique Logistics:** None

Intentionally Blank

CM Developmental NLW

Vehicle Lightweight Arresting Device (VLAD)

Single Net Solution (SNS) & Remote Deployment Device (RDD)



Anticipated Fielding: FY12

Status: Developmental

Lead Agency: USA

Target Type: Counter-Materiel

Intended Target Response: Stop a vehicle.

Description: The SNS is a pre-emplaced, man portable, rapidly deployed net equipped with a unique barbed spike system. It is designed to capture larger vehicles than the currently fielded M2 VLAD Net. The RDD is an electromechanical system capable of pulling the M2 VLAD or SNS across a road.

Concept of Employment: Force protection at vehicle checkpoints and road blocks to stop vehicles.

Capability Effect: Entanglement of front tires to stop wheeled vehicles with weights up to 22,000 lbs threshold/40,000 lbs objective, traveling at 30 mph threshold/50 mph objective, within 200 ft.

(U) VLAD SNS and RDD cont.



(U)

(U) Delivery System: A self contained device with the VLAD SNS having a one time use and the RDD being reusable.

(FOUO) Collateral Damage: Flat tires, possible brake and axel damage, and minor scrapes to vehicle; Potential injury to vehicle occupants not wearing a seat belt.

(FOUO) Counter Measures: Evasive maneuvering.

(U) Environmental Effects: None

(U) Policy Implications: None

(U) Unique Logistics: Materials Handling Equipment (MHE)/tow truck, or other means to move vehicle and avoid blocking/delaying traffic.

Small Vessel Stopping Entanglement



Anticipated Fielding: FY13
Status: Developmental, product improvement of existing system.
Lead Agency: JNLWD

Target Type: Counter-Materiel

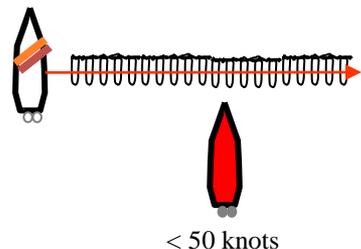
Intended Target Response: Stop a small vessel.

Description: An improved propeller entangler with a more consistent capture rate of small waterborne propeller-driven craft.

Concept of Employment: Stop a small waterborne propeller-driven craft by launching the system in front of a target watercraft to entangle propellers.

Capability Effect: Stops propeller propulsion of vessels.

(U) Small Vessel Stopping Entanglement cont.



Must be deployed in front
of target vessel



(U)

(U) Delivery System: Single deployment, surface-launched system is deployed using compressed air.

(FOUO) Collateral Damage: Potential injury to vessel occupants and damage to propeller.

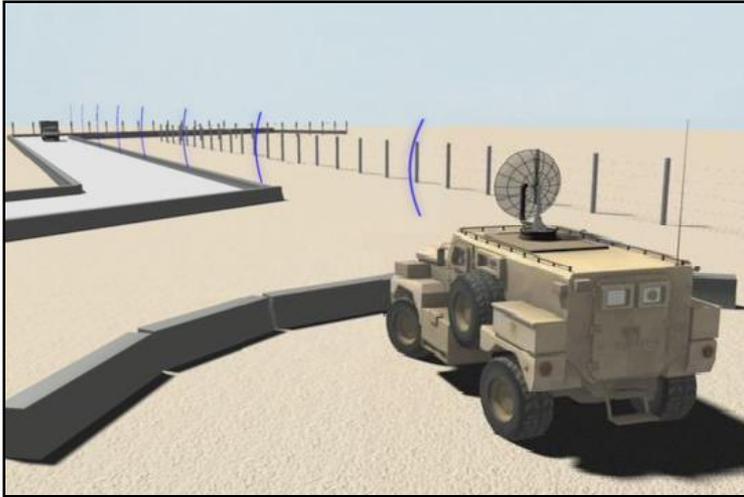
(FOUO) Counter Measures: Evasive maneuvers.

(FOUO) Environmental Effects: High winds and high sea states can reduce effectiveness.

(U) Policy Implications: Foreign port restrictions may apply.

(U) Unique Logistics: May require another vessel to tow disabled/stopped vessel.

Multi-Frequency RF Vehicle Stopper



Anticipated Fielding: FY18

Status: Development

Lead Agency: JNLWD

Target Type: Counter-Materiel

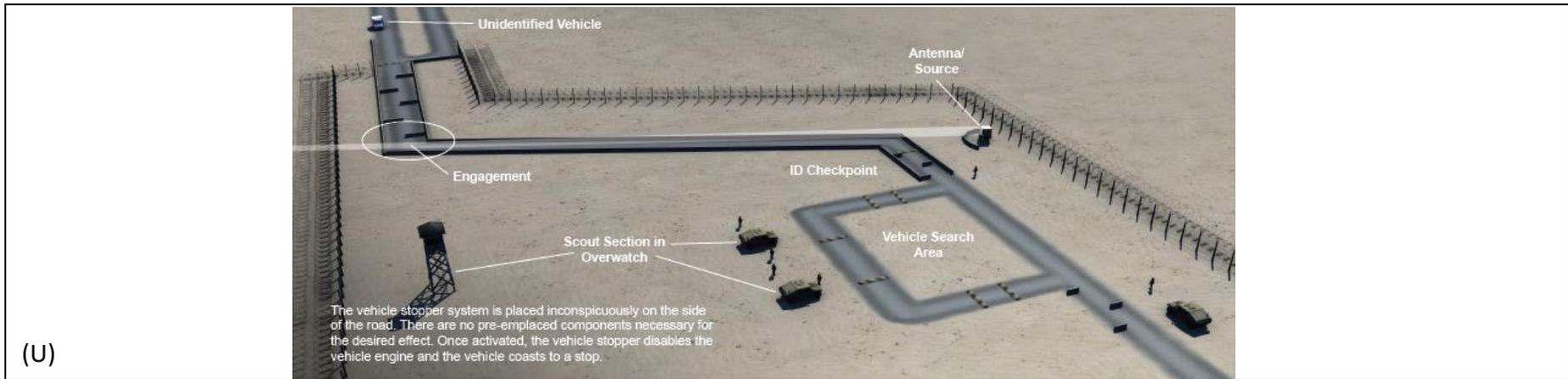
Intended Target Response: Stop vehicles.

Description: A portable RF Vehicle Stopper system would allow for the maintenance of a safe, non-lethal keep-out zone by using high power microwaves to disrupt vehicle engines.

Concept of Employment: Force protection, access control points, roadblocks, and checkpoints to stop vehicles.

Capabilities Effect: Disrupts vehicle electrical components to cause the engine to stall.

(U) Multi-Frequency RF Vehicle Stopper cont.



(U) Delivery System: Self-contained, mobile/transportable system.

(FOUO) Collateral Damage: Collateral effects against unintended targets in the immediate target area.

(FOUO) Counter Measures: Shielding or hardening of equipment.

(FOUO) Environmental Effects: None

(U) Policy Implications: None

(U) Unique Logistics: None

Intentionally Blank

CM Conceptual NLW

Non-Lethal Unmanned Aerial Vehicle (UAV) High Power Microwave (HPM) Payload



Status: Conceptual
Lead Agency: JNLWD

Target Type: Counter-Materiel

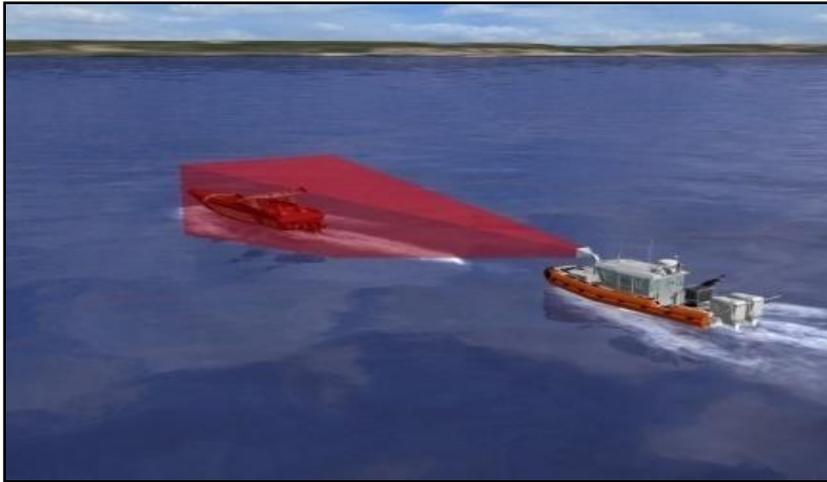
Intended Target Response: Stop or disable vessels.

Description: Develop an aeriably deliverable high power microwave payload providing a long range non-lethal capability for small vessel stopping, swarm defense and ship system disruption.

Concept of Employment: Force protection, port operations, and vessel pursuit/stop/interdiction.

Capability Effect: Stops vessel propulsion by electrical system malfunction.

RF Vessel Stopper



Status: Conceptual
Lead Agency: JNLWD

Target Type: Counter-Materiel

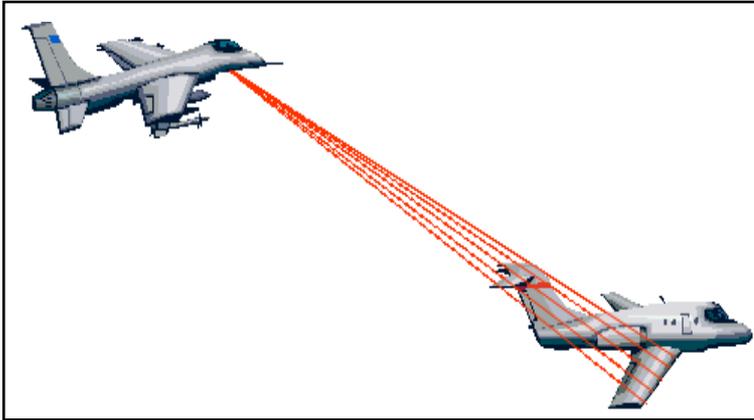
Intended Target Response: Stop or disable vessels.

Description: Develop stationary or mobile high power microwave payload providing a long range non-lethal capability for small vessel stopping, swarm defense and ship system disruption.

Concept of Employment: Force protection, port operations, and vessel pursuit/stop/interdiction.

Capability Effect: Stops vessel propulsion by electrical system malfunction.

Laser Based Flow Modification



Status: Conceptual
Lead Agency: JNLWD

Target Type: Counter-Materiel

Intended Target Response: Divert aircraft from restricted area.

Description: A laser-based approach to modify the flow across control surfaces of an airplane. This effect is achieved by directing a pulsed laser at the leading edge of the airfoil in order to adjust the drag and lift on a plane, externally controlling the steering forces through modifying aerodynamic flow.



Concept of Employment: Divert aircraft from restricted area.

Capabilities Effect: Force aircraft to divert from path by modifying airflow across control surfaces.

Intentionally Blank

