Miniature Day/Night Sight-Crew Served Weapons (MDNS-CSW)

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Presented by Mr. Michael Jones, USSOCOM MDNS-CSW Project Manager
Presented to NDIA Small Arms Symposium
MDNS-CSW Agenda

- Mission & Concept
- Purpose of The Acquisition
- Requirement Background
- Description of CSW Components
MDNS-CSW System Mission: An Operator equipped with the MDNS-CSW system is able to recognize, engage, and defeat enemy personnel and targets during Urban Warfare and open combat to the max effective range of the host weapon. The MDNS-CSW allows Operators to transition from day to night or obscured visibility while retaining the ability to accurately acquire and target threats.
The MDNS-CSW System Is An Integrated System Utilizing An RS-232 (or similar non-proprietary) Bus To Enable Operator Control Of All Subsystem Functions From The RCM

All Combat Critical Controls Will Be Controlled By RCM Mounted Switches

Non-Critical Component Functions Controlled By GUI

ECOS-H Optical Will Not Be Required To Meet Remote Control Requirement

Ballistic Processor Module Will Interface With All Sighting Systems To Provide Targeting Data
### SOPMOD Client Weapons

#### SOPMOD ORD 5 - Core Small Arms (Threshold) ...Design For Use On:
- M4A1 Carbine
- M203 Grenade Launcher

#### ORD Annexes - Additional Weapons
- Harden For Use On, and possibly develop versions for:
  - SCAR
  - CQBR (Mark 18)
  - M14 and Mark 14 Enhanced Battle Rifle
  - AK-47/AK74 Series Assault Rifle
  - MK46 LMG / M249 SAW Machineguns
  - MK48 Machineguns

<table>
<thead>
<tr>
<th>Weapon</th>
<th>Quantity</th>
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<tr>
<td>M2-HB .50 Cal Machinegun</td>
<td>(~1850 SOF units, ~150K Units US, ~6M Units W-Wide)</td>
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<tr>
<td>MK44 Minigun</td>
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<td>M240 Series</td>
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<td>Mk-19 40mm Machinegun</td>
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<td>MK-47 ALGL</td>
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- M72 LAAW
- AT4-CS
- MAAWS
- MK11, MK12, MK13, & MK15 Sniper Rifles
- M-24 Sniper Rifle

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*Harnessing the Power of Technology for the Warfighter*

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Distribution Statement A - Approved for public release; distribution unlimited.
MDNS-CSW Purpose
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Distribution Statement A - Approved for public release; distribution unlimited.
MDNS-CSW Background

- 1990’s to 2005 various expedient CS aiming and signature suppression items… not system integrated
- FY 06 CSHWAL and WQM Market Surveys
- Project Initiated by Requirements W-IPT’s June/July 06
- MDNS-CSW Synopsis published September 06
- Draft Performance Specification published Oct 06
- Roadmap Vetted through Requirements W-IPT Dec 06
- CSW Spec under revision for Full System Acquisition Similar to MDNS Block II
MDNS-CSW Components

- Crew Served Heavy Weapon Aiming Laser (CSHWAL)
- Visible Bright Light - Heavy (VBL-H)
- Remote Control Subsystem (RCS)
- Rail Interface System - Heavy (RIS-H)
- Enhanced Combat Optical Sight - Heavy (ECOS-H)
- Optical “Back-Up” Sight (ECOS-H Optical)
- Clip-On Night Vision Device - Heavy (CNVD-H)
- Ballistic Processor Module (BPM)
- Improved Flash Hider (IFH)
Crew-Served and Heavy Weapons Aiming Laser (CSHWAL)

- IR And Visible Laser
- IR Illumination
- IR Laser Divergence (0.5-10mrad)
- Visible Laser Divergence (0.5-10mrad)
- IR Illumination Beam Divergence (0.5mrad- 40°)
- Pulsed Operation Capable
- IFF (Identify Friend or Foe) Capable
- Weight Less Than 4 lbs (T), 1 lb (O)
- External Power and Onboard Back-Up
- Control Of All Functions From RCM
Visible Bright Light-Heavy (VBL-H)

- Range of 1000 meters
- Variable Strobe (1-30 F/S)
- Variable Beam Angle (1°- 20°)
- Variable Intensity Control
- Control of All Functions From RCS
- Less than 11” L x 8” W x 8” H
- Weight Less Than 10 lbs (T), 8 lbs (O)
Remote Control Subsystem (RCS)

- Controls All Functions of The MDNS-CSW System
- This Concept Drawing Shows Control Surface For Bid Sample Submittal
- Final Design Will Incorporate LCD Screen
Rail Interface System-Heavy (RIS-H)

- Provides Mounting Surfaces Forward of The Ballistic Shield
- RIS-H Mounts to The MK93 Mount, Providing Decreased Felt Recoil to MDNS-CSW Components
ECOS-H

- Two Components
  - ECOS-H Digital
  - ECOS-H Optical
- Targets from 0- Max Effective Range
- Maintain Situational Awareness
- External Power and Onboard Back-Up
- Control Of All Functions From RCM
- Compatible With Ballistic Processor For Disturbed Reticle Targeting
Clip-On Night Vision Device – Heavy (CNVD-H)

- Multiple Mode Selections
- Image Intensification
- Thermal Imaging
- Fusion Mode
- Targets from 0- Max Effective Range
- Maintain Situational Awareness
- External Power and Onboard Back-Up
- Control Of All Functions From RCM
- Compatible With Ballistic Processor For Disturbed Reticle Targeting
Ballistic Processor Module (BPM)

- 1000m First round Hit Probability of \( P(\text{hit}) = 0.75 \)
- IR Class 1 Laser
- Laser Shall Not Be Detectable With NVE
- Pulse Coded Output To Minimize Jamming
- Range Of 25m To 2200m
- Laser Range Finder Acquisition Time < 1 Second
- Fire Control Solution Of < 3 Seconds
- Will Incorporate Digital Orientation Unit Capable of 3 – Axis Compensation
- External Power and Onboard Back-Up
- Control Of All Functions From RCM
Improved Flash Hider (IFH)

- Mounts to Unmodified M2 Barrel
- Requires No Special Tools
- Reduces Muzzle Flash For Decreased Signature
- Operator NVE Becomes More Effective
Existing MK 93 in Turret

14.75"
Modified MK 93 in Turret
## Schedule

### MDNS-CSW

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<th>Milestones</th>
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End Result:

Increased Probability of First Round Hit
Contact Information

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