NSWC Crane

“Harnessing the Power of Technology for the Warfighter”
USSOCOM SOPMOD - Miniature Day/Night Sight Development Program

8 May 2007

Presented by Mr. Barry Gatewood, USSOCOM SOPMOD Deputy Program Manager
Presented to NDIA Small Arms Symposium
SOPMOD Program
Updates &
Accomplishments
SOPMOD Mission

The SOPMOD Program Management Office at NSWC Crane, IN, will provide standardized, versatile weapons accessories to meet needs across SOF mission scenarios. These accessories will increase operator survivability and combat effectiveness by enhanced weapon performance, target acquisition, signature suppression, and fire control. The SOPMOD PMO will provide these accessories when they are operationally suitable, affordable, sustainable, and funded.
SOPMOD ORD 5 - Core Small Arms (Threshold) ...Design For Use On:
M4A1 Carbine
M203 Grenade Launcher

ORD Annexes – CDD Format
Additional Weapons (Objective)
....Harden For Use On, and develop versions for:

SCAR
Mk 12
CQBR (Mk 18)
M14 and Mk 14 Enhanced Battle Rifle
AK-47/AK74 Series Assault Rifle
MK-46 LMG / M249 SAW Machineguns
MK-48/M240-N/M240/M240-B Machineguns
M2-HB .50 Cal Machinegun
Mk44 Minigun
Mk-19 40mm Machinegun
M72 LAW
AT4-CS
MAAWS
MK11, MK13, & MK15 Sniper Rifles
M-24 Sniper Rifle

SOPMOD Weapons of Interest

Limited SOPMOD Interest in Lasers – Passive Aiming Generally Covered by INOD Program (AN/PVS 22/26)
Capabilities Required

- Standardized versatile weapons accessories
- Modular- meets needs across SOF mission scenarios
- Increased operator survivability and combat effectiveness by enhanced target acquisition, signature suppression, and fire control

Evolutionary Acquisition Subprograms:
- **Block I** (Plus Platform Mods and Phased Replacements)
- **Block II** (New and Combined Capabilities)
- **Block III** (Emerging Capabilities & Crew Served)
SOPMOD Guidance

PMS-NSW
Navy Policy

PIPT
Joint Operator Input

PEO-SOF
WARRIOR Joint SOF Policy

Harnessing the Power of Technology for the Warfighter
SOPMOD Sub-Program Structure

SOPMOD Sustainment

Miniature Day/Night Sight (MDNS) Development

Weapons Performance & Shot Counter (WSC)
SOF-Peculiar
M4A1 Carbine Product Improvements

Extended / Gas Deflecting Charging Handles

Extraction Parts Set #2

Redi-mag

Sloping Cheekweld Buttstock (SCB)

Ambidextrous Selector Switch

High Reliability Magazines (HRM) Steel and Aluminum

Harnessing the Power of Technology for the Warfighter
Joint Weapon Accessory System Currently Used By Army Special Forces, Army Rangers, Navy SEALS, Air Force Special Tactics & USMC Special Operations.

Integrated Day And Night Aiming and Signature Suppression System

- 20 Varieties Of Subsystems
- 6 Varieties Of Minor Items And Parts Sets
- Miniaturized Lights, Lasers, Optics, Image-Intensification Night Vision, Thermal Imaging, And Sound Suppressors
Accomplishments (2)

- 110,092 Total End Items Fielded To Joint SOF Forces-Currently Used In GWOT, with xxxxx End Items Currently In-Transit
- Over $196 Million Awarded On Contracts To Date
  - Additional $175M Programmed For Future Fielding
  - 10 Block II Subsystems, over 74,000 items in current production runs
  - 6 Emerging Block III Systems
- Cradle-To-Grave Life Cycle Support To Customers, Controlled Through DoD Registry, Sustained Through A Joint Special Operations Logistics System
- Full Program Under One Roof at NSWC Crane.
Miniature
Day/Night Sight
(MDNS)
Development
The SOPMOD Program Management Office will utilize the Miniature Day/Night Sight (MDNS) Development Program to focus on phased replacements to current SOPMOD Block I items and the acquisition of new Block II items to reflect the latest innovations in optical sighting technology. Items procured through the MDNS Development program will address shortcomings in currently fielded equipment and seek to field smaller, more rugged equipment suitable for a variety of weapons platforms.
MDNS Goals

- Update Aging Technology on Current SOPMOD Items
- Address Possible Improvements in Current SOPMOD Kit Items
- Miniaturize and Ruggedize SOPMOD
- Integrated System Approach
- Encourage Innovation through Competition
- RDT&E + Modified NDI: Best of Both Worlds
- Meet Objective Fielding Requirements for SOPMOD Kits
Acquisition Recap

- Feb 02 $1.5M RDTE Unrequested CPU
- Mar 02 Commercial Agency Announcement Published
- Feb 03 Solicitation Opens
- Apr 03 USSOCOM Approves Performance Spec
- Apr 03 Solicitation Closes
- Jun 03 Phase 1 Step 2 Oral Presentation/Demonstration
- Mar 04 - Sep 05 Contracts Awarded
- Dec 04 USSOCOM Approves ORD Annex
- Aug 04 - May 06 OT/DT/ECPs
- May 06 USSOCOM ADM Approved: Full Rate Production
- Jul 07 Commence TPF ($90M Value to Date + $90M Additional Through FY13)
SOPMOD Sustainment Sub-Program

**DESCRIPTION**

[Image of SOPMOD M4 Accessory Kit]

**Program Status:** GREEN

- Standardized, versatile weapons accessories to meet needs across SOF mission scenarios
- Increased operator survivability and lethality by enhanced weapon performance, target acquisition, signature suppression, and fire control

**APPROXIMATE BUDGET PROFILE**

- **FY-95 to Present, Invested:**
  - $11M R&D
  - $173M Procurement
  - $21M O&M

- **Planned Sustainment of Current and Future Systems through FY13:**
  - $65M O&M

**PERFORMANCE CHARACTERISTICS**

**KEY MILESTONES/ACTIVITIES**

- Product Improvements
- Sustain Block 1
- Sustain Block 2

**Harnesing the Power of Technology for the Warfighter**
SOPMOD ACQUISITION TOP MAP
TOP MAP STRUCTURE

• Overview Top Map Shows Entire System at a Glance

• Five Detailed SOPMOD Accessories Top Maps Show Main Subsystem Categories
  1. Carbine Improvement Subsystems
  2. Passive Day Aiming Subsystems
  3. Passive Night Aiming Subsystems
  4. Active Aiming Subsystems
  5. Weapons Shot Counter Subsystems
SOPMOD ACQUISITION TOPMAP OVERVIEW

<table>
<thead>
<tr>
<th>Existing Systems</th>
<th>Emerging Systems</th>
<th>Objective Systems</th>
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</table>

**SOPMOD ACCESSORY KIT OVERVIEW**

**SOPMOD Increment #1 (1994-2007+)**

**SOPMOD 1**
1994-2012

**SOPMOD 2:**
MDNS & WSC
2004 -2012+

**SOPMOD 3**
2007-Onward

**SOPMOD 1 & 2** Compatible With both M4A1 Carbine and SCAR

**SOPMOD 3** Compatible With All SOF Weapons

*Harnessing the Power of Technology for the Warfighter*
### SOPMOD ACQUISITION TOPMAP

**Passive Day Aiming Subsystems**

<table>
<thead>
<tr>
<th>Year</th>
<th>Existing Systems</th>
<th>Emerging Systems</th>
<th>Objective Systems</th>
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- **Existing Systems**
  - ACOG Reflex
  - SU-231/PEQ Reflex Sight
  - ECOS-N
  - ACOG 4x

- **Emerging Systems**
  - ECOS-GL Reflex Sight
  - SU-237 Sight Unit
  - SU-230/PVS Articulated Telescope

- **Objective Systems**
  - ECOS-H

**Notes**

- USSOCOM ORD Amendment 5, 29 October 1999
- MDNS CDD 16 December 2004

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Distribution Statement A - Approved for public release; distribution unlimited.
SOPMOD ACQUISITION TOPMAP
Passive Night Aiming Subsystems

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- MNVS AN/PVS-17A
- Universal Pocketscope Mount
- Weapon-Specific MNVS (e.g., Crew Served)
- MRD-PIP
- AN/PVS-17A PIP
- CNVD Sensor Fusion
- Clip-on Night Vision Device – I2
- CNVD-H
- Clip-on Night Vision Device - Thermal

USSOCOM ORD Amendment 5, 29 October 1999
MDNS CDD 16 December 2004

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## SOPMOD ACQUISITION TOPMAP

### Active Aiming Subsystems

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- **Existing Systems**
  - AN/PEQ-5
  - AN/PEQ-2
  - ITPIAL
  - CVL
  - VLI

- **Emerging Systems**
  - ATPIAL
  - VBL
  - PIP

- **Objective Systems**
  - Crew-Served and Heavy Weapons Aiming Laser
  - Spirals: Ultra-High Power and Wireless Controls

### Notes
- USSOCOM ORD Amendment 5, 29 October 1999
- MDNS CDD 16 December 2004
- CSHWAL
- VBL-H and M

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**Distribution Statement A** - Approved for public release; distribution unlimited.
### SOPMOD ACQUISITION TOPMAP

**Weapon Shot Counter Subsystems**

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- **WSC - Carbine**
  - WSC CDD approved 16 Dec 2004
  - Shot Counter
  - Data Collection Device (DCD)

- **WSC - Machinegun and Sniper**
  - Maintenance Software
  - Data Collection Device (DCD)
  - Shot Counter

- **WSC – Future Weapons**

**SOST Prototypes**

Distribution Statement A - Approved for public release; distribution unlimited.
Clip-on Night Vision Device - Sensor Fusion

CNVD-SF
CONCEPT IMAGE

Initial Objectives:
• Improved Target Acquisition
• Less than 2 Pounds
• Less than $30K Per Copy, Objective less than $10K
• Technology Readiness Assessment Complete
• Draft Specification and Acquisition Strategy Published, Open for Public Comment until End of June 2006
CNVD-SF

Videos Courtesy of
Litton EOS
Garland, TX
BASELINE SYSTEM (1)

- New Capability
- Significant Size/Weight Reduction (24 oz)
- Improved Target Detection Capability
- For Use as CNVD or Stand-Alone
- 1X-2X Zoom
- Dual Video Output, VGA and RS 170
- Throw Lever Mount
- Improved OLED for Enhanced Performance
- Potential CNVD-Sensor Fusion Spiral Development
- Contract N00164-04-D-4840 Awarded to Insight Technology
AN/PVS-24 Night Vision Device
OVERVIEW

BASELINE SYSTEM (2)

- Original ORD 5 Block II
- Sized and Scaled for Use on Carbines and Light Machineguns
- Gen III OMNI V Auto-Gated Image Tube
- Lightweight (app 24 oz)
- Improved Zero Retention for Day Scopes
- Contract N00164-04-D-4839 Awarded to Litton
Detection, Recognition and ID

Man Size Tgt Ranges

- Identification
- Recognition
- Detection

Options:
- Fusion Qtr(O)
- FusionQtr(T)
- FusionSL(T)
- I2QtrMoon(T)
- I2Starlight(T)
- Thermal(T)

Meters
CNVD-SF Schedule

- Publish Solicitation: Spring 2007
- Contract Award: Spring 2008
- Full Rate Production: 2010
Miniature Red Dot (MRD)

- Provides Attachable CQB Capability to Existing SOPMOD Sights
- SOPMOD Currently Utilizes Docter® Sight
- Improvements Desired:
  - Needs Durability to Meet All SOF Combat Requirements
  - Waterproof up to 66 Feet
  - Easier Battery Change
SOPMOD Program Support to Force Development Test & Experimentation
MDNS - CSW

PHASE 1: FDT&E leads to User Assessment – NAVSPECWARCOM N-42 Tests for Urgent COTS Bridge Contracts

PHASE 2: Full Fair and Open Competition leads to Formal OT&E – Fully Integrated Modular System
Weapons Of Interest

- M2HB
- MK44 Minigun
Weapons Of Interest

M240B

M240D

M240N

Mark 48
MDNS-CSW Concept
New Technology Drivers

- Continuous Automatic Ranging Scopes
- With Corrected Aim Points
- Some Bernoulli Factors Applied (Less Wind)
- Autonomous Target Recognition Tied To Triggering
- Rain Shedding Coatings
- Adaptive Optics
- Wind Full Vectors (Someday)
- Barrel Cooling Technologies
- Full Signature Suppression
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