

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

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.



1995-2002

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

May 7th, 2002

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
MK46 LMG / M249 SAW Machineguns
MK48/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)



- ➡ **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



Crane Future Task Organization



Fielding & Sustainment

ALGL PMO

PEO-SW FTT

SOF LCSMs

O-Level Course

SOVAS PjM



RD&A & ISEA

USSOCOM Program Group?

RD&A & ISEA



RD&A & ISEA

RD&A & ISEA

SOF Wpns PMO

RD&A & ISEA

SOPMOD PMO

SOF Shoulder Fired





SOPMOD Sustainment

Miniature Day/Night Sight (MDNS) Development

Weapons Performance & Shot Counter (WSC)



SOPMOD M4

Special Operations Peculiar Modification to the M4 Carbine

Poster Version 3 February 2005

Accessory Kit

Block I Accessory Kit

Logistics Support: sopsustainment@navy.mil
Website: <http://ssavie.socom.mil>



Reflex Sight
NSN: 1240-01-435-1916

ECOS-N
NSN: 1240-01-495-1385

4X Day Optical Scope
NSN: 1240-01-412-6608

AN/PEQ-5 Carbine Visible Laser
NSN: 5860-01-439-5409

AN/PVS-17A Mini Night Vision Sight
NSN: 5855-01-474-8904

AN/PEQ-2 Infrared Illuminator
NSN: 5855-01-422-5253

Backup Iron Sight
NSN: 1005-01-449-6806

Visible Bright Light II
NSN: 5855-01-501-3081

Universal Pocketscope Mount (PVS14)
NSN: 5855-01-482-6164
(PVS18) NSN: 5855-01-485-7749
(M68) NSN: 5855-01-485-7755

M4A1 Carbine w/Carrying Handle
NSN: 1005-01-382-0953

Forward Handgrip
NSN: 1005-01-416-1091

Sound Suppressor Kit
NSN: 1005-01-437-0324

Rail Interface System
NSN: 1005-01-416-1089

Grenade Launcher Mount
NSN: 1055-01-416-1090

Grenade Launcher Leaf Sight
NSN: 1010-01-418-4588

AN/PSQ-18A M203 Day/Night Sight
NSN: 1010-01-516-0953

M203 9" Barrel Assembly
NSN: 1010-01-410-7422



SOF-Peculiar M4A1 Carbine Product Improvements





- ➡ **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**



➡ 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

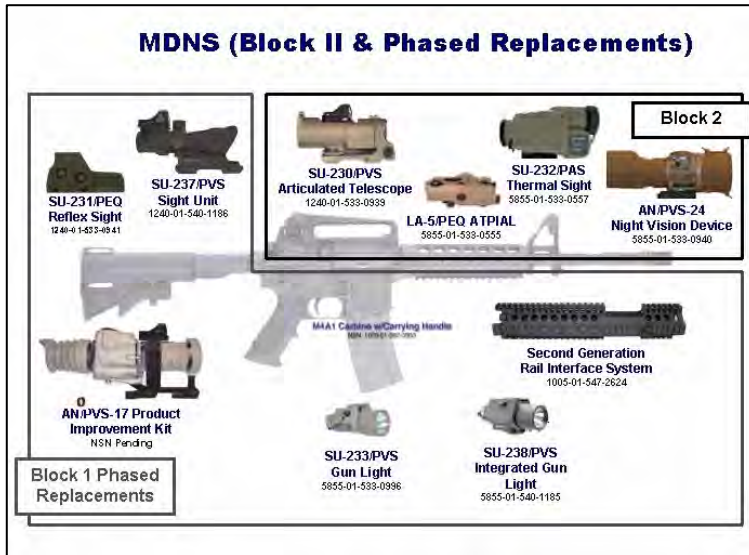
➡ 6 Emerging Block III Systems

➡ 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.



- ➡ **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**



Block 2



**SU-231/PEQ
Reflex Sight**
1240-01-533-0941



**SU-237/PVS
Sight Unit**
1240-01-540-1186



**SU-230/PVS
Articulated Telescope**
1240-01-533-0939



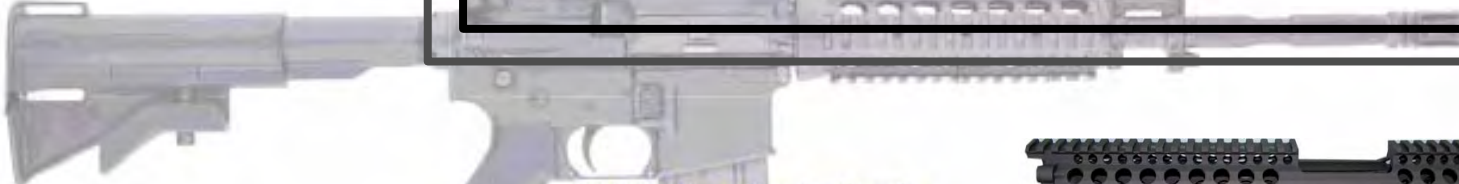
**SU-232/PAS
Thermal Sight**
5855-01-533-0557



LA-5/PEQ ATPIAL
5855-01-533-0555



**AN/PVS-24
Night Vision Device**
5855-01-533-0940



M4A1 Carbine w/Carrying Handle
NSN: 1005-01-382-0903



**AN/PVS-17 Product
Improvement Kit**
NSN Pending



**Second Generation
Rail Interface System**
1005-01-547-2624



**SU-233/PVS
Gun Light**
5855-01-533-0996



**SU-238/PVS
Integrated Gun
Light**
5855-01-540-1185

**Block 1 Phased
Replacements**



- ➔ **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 - May06** **OT/DT/ECPs**
- ➔ **May 06** **USSOCOM ADM Approved: Full Rate Production**
- ➔ **Jul 07** **Commence TPF (\$90M Value to Date + \$90M
Additional Through FY13)**



SOPMOD 2007 MACRO CALENDAR



JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

S.H.O.T. Show

SPRING PIPT

FDT&E

WSC Spirals

WSC FIELDING

NDIA

MDNS-CSW/BTA/MRD Testing

MDNS FIELDING

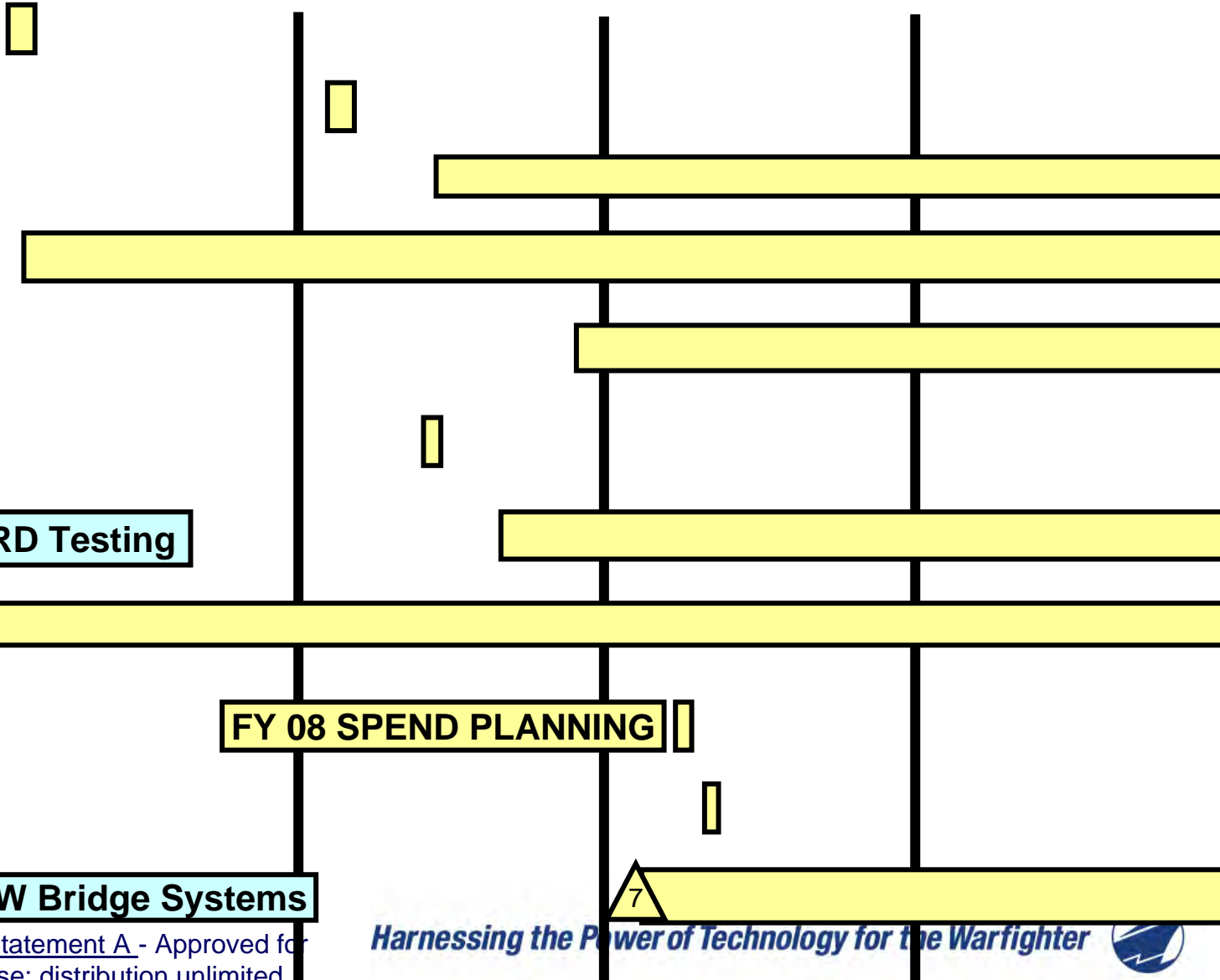
SUMMER REVIEWS

SUMMER PIPT

MDNS OT/DT 7- CSW Bridge Systems

FY 08 SPEND PLANNING

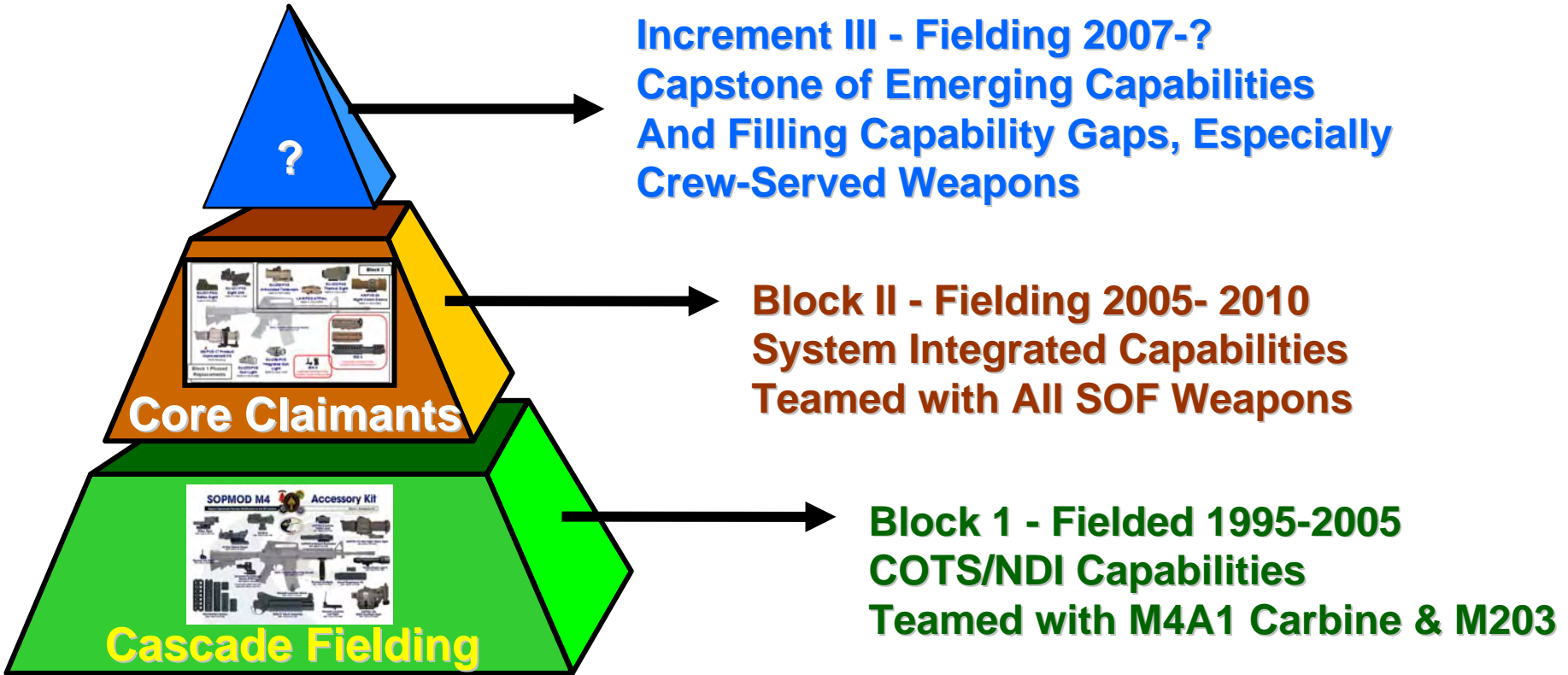
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SOPMOD ACQUISITION TOP MAP



TOP MAP STRATEGY



- **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

Existing Systems

Emerging Systems

Objective Systems

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
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						



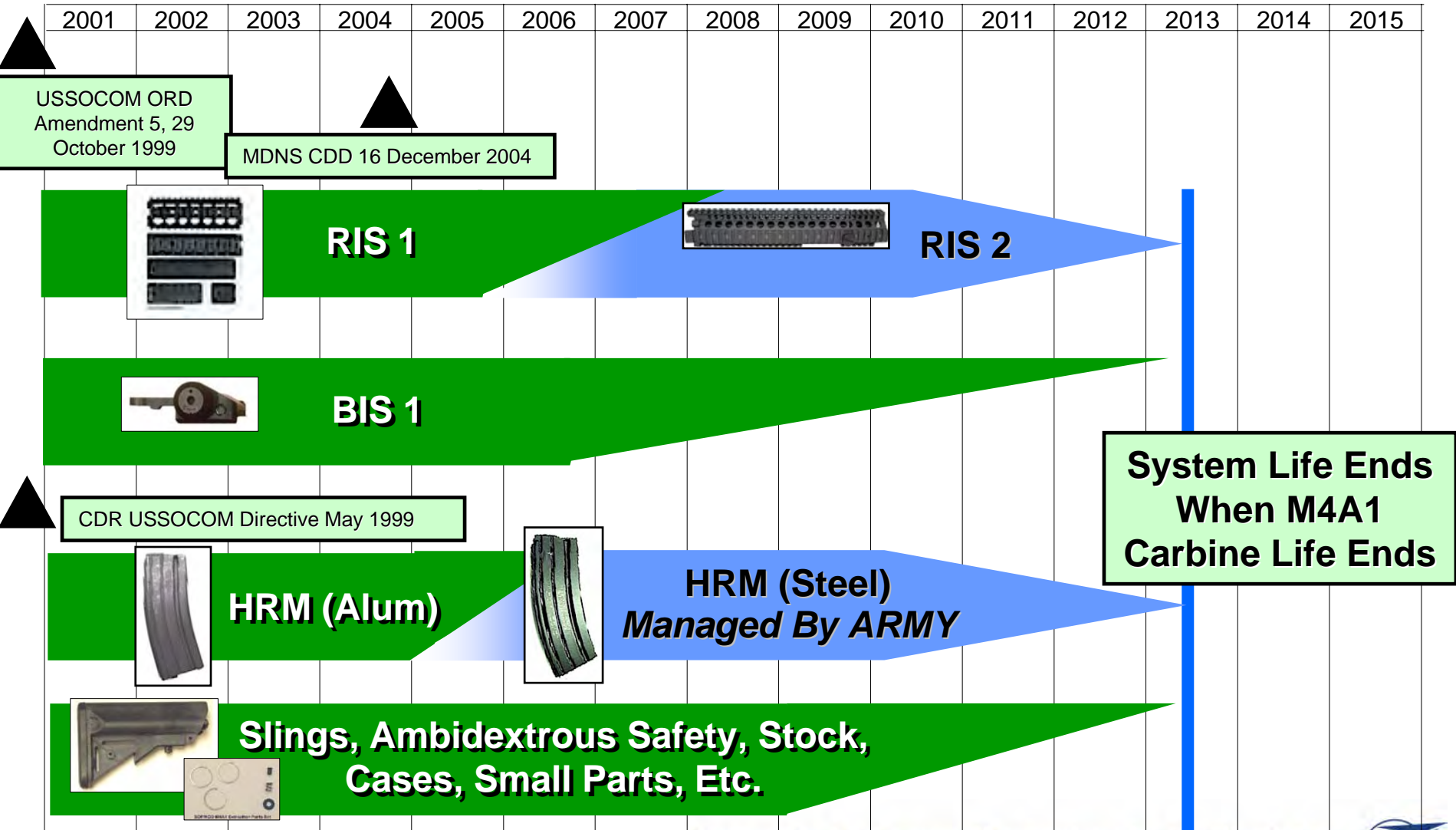
SOPMOD ACQUISITION TOPMAP

Carbine Improvement Subsystems

Existing Systems

Emerging Systems

Objective Systems



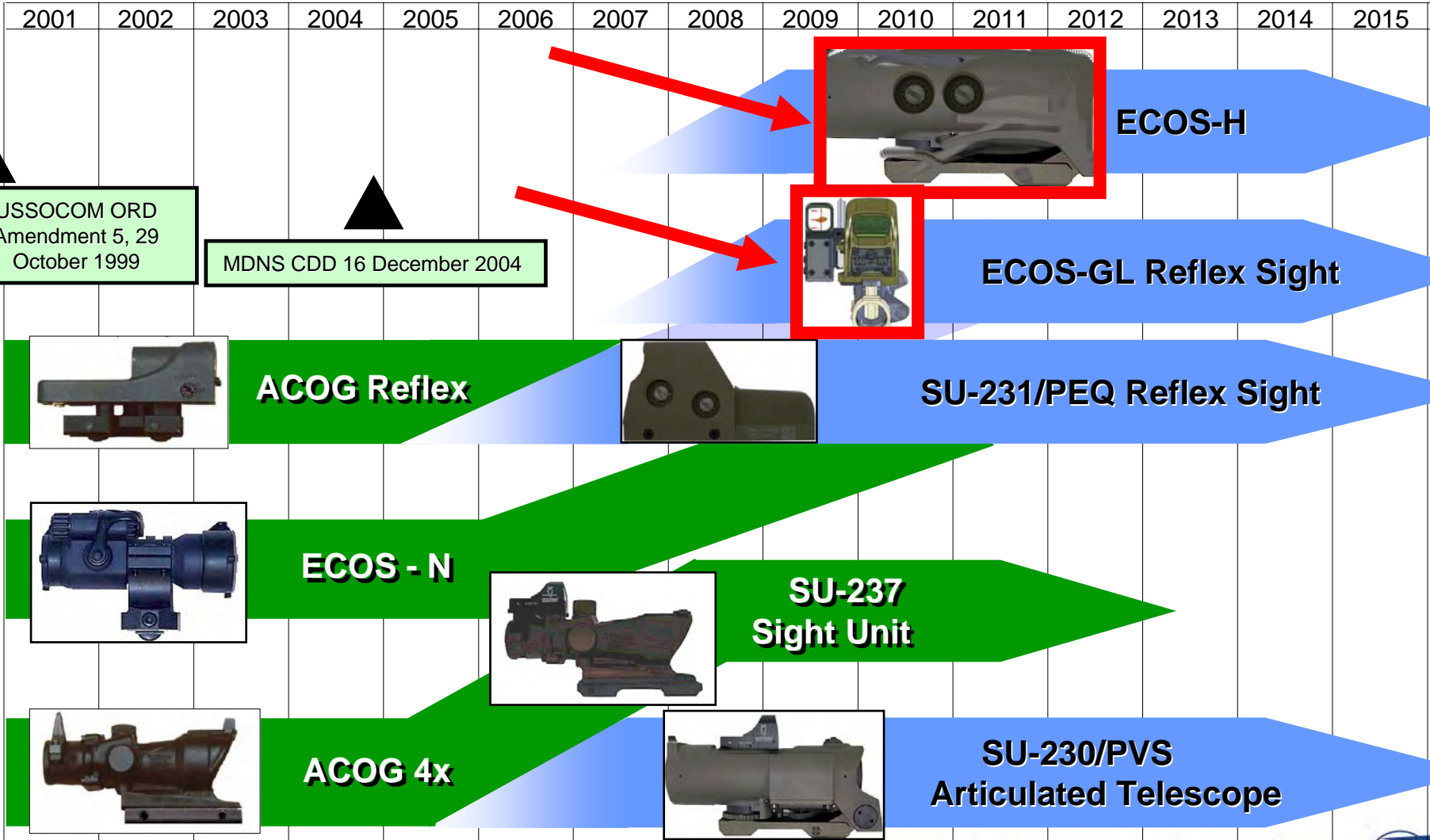
SOPMOD ACQUISITION TOPMAP

Passive Day Aiming Subsystems

Existing Systems

Emerging Systems

Objective Systems



SOPMOD ACQUISITION TOPMAP

Passive Night Aiming Subsystems

Existing Systems

Emerging Systems

Objective Systems

2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

USSOCOM ORD
Amendment 5, 29
October 1999

MDNS CDD 16 December 2004



**Weapon-Specific MNVS
(e.g.. Crew Served)**



**MNVS
AN/PVS-17A**

MRD-PIP



**AN/PVS-17A
PIP**



CNVD-H



**Universal
Pocketscope
Mount**



Clip-on Night Vision Device - I2



**CNVD Sensor
Fusion**



Clip-on Night Vision Device - Thermal

CONCEPT IMAGE

SOPMOD ACQUISITION TOPMAP

Active Aiming Subsystems

Existing Systems

Emerging Systems

Objective Systems

2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

USSOCOM ORD
Amendment 5, 29
October 1999

MDNS CDD 16 December 2004



**Crew-Served and Heavy
Weapons Aiming Laser**



**ITPIAL
Carbine AN/PEQ-2**



**CVL
AN/PEQ-5**



**ATPIAL
Spirals: Ultra-High Power
and Wireless Controls**



VBL-H and M
CONCEPT IMAGE

VBL – Medium And Heavy

**VBL 2
PIP**



VLI



VBL 2



SU-233/PVS and SU-238/PVS Gun Lights

VBL 3



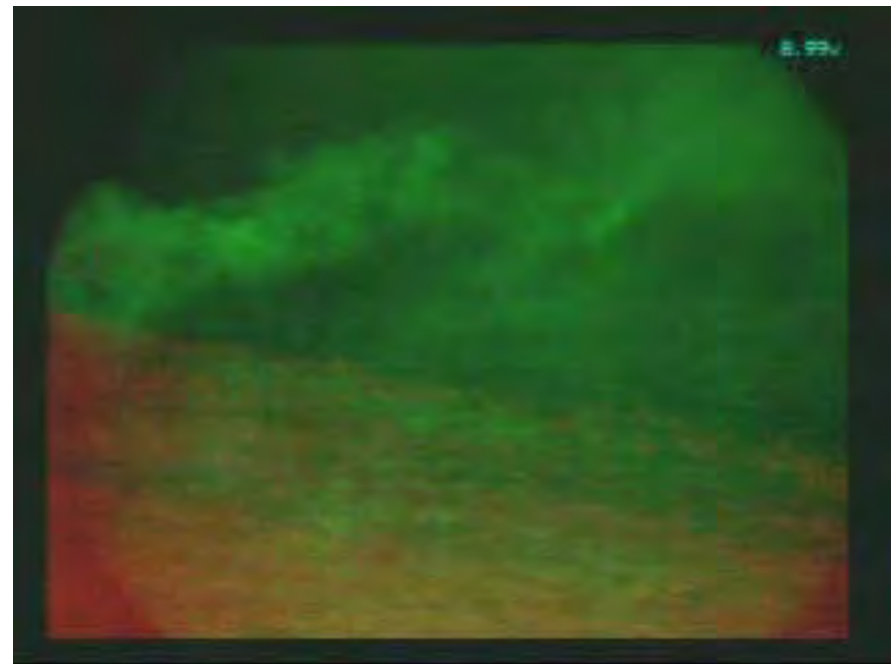
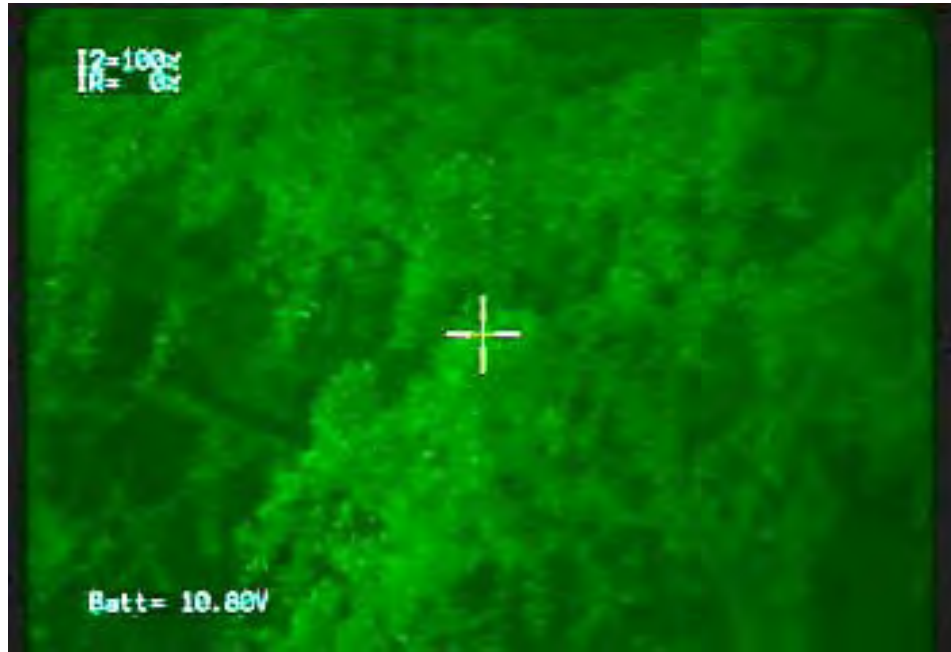
CNVD-SF CONCEPT IMAGE

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



Videos Courtesy of
Litton EOS
Garland, TX



BASELINE SYSTEM (1)



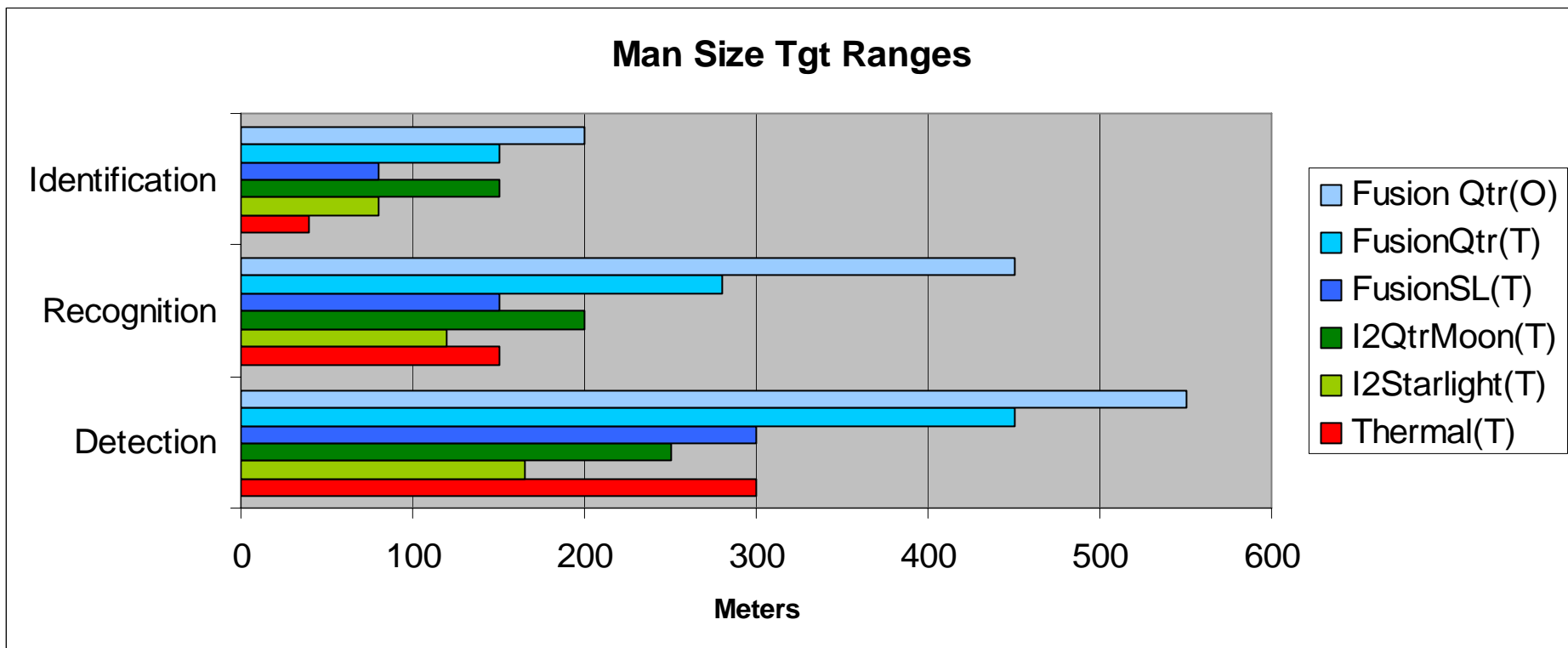
- New Capability
- Significant Size/Weight Reduction (24 oz)
- Improved Target Detection Capability
- For Use as CNVD or Stand-Alone
- 1X-2X Zoom
- Dual Video Output, VGA and RS 170
- Throw Lever Mount
- Improved OLED for Enhanced Performance
- Potential CNVD-Sensor Fusion Spiral Development
- Contract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

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



- ➡ Publish Solicitation: Spring 2007
- ➡ Perform Technical Evaluation: Winter 2007
- ➡ Contract Award: Spring 2008
- ➡ Developmental/Operational Testing: Winter 2008
- ➡ Full Rate Production: 2010



- ➔ 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



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



M2HB



MK44 Minigun

Weapons Of Interest



M240B



M240D

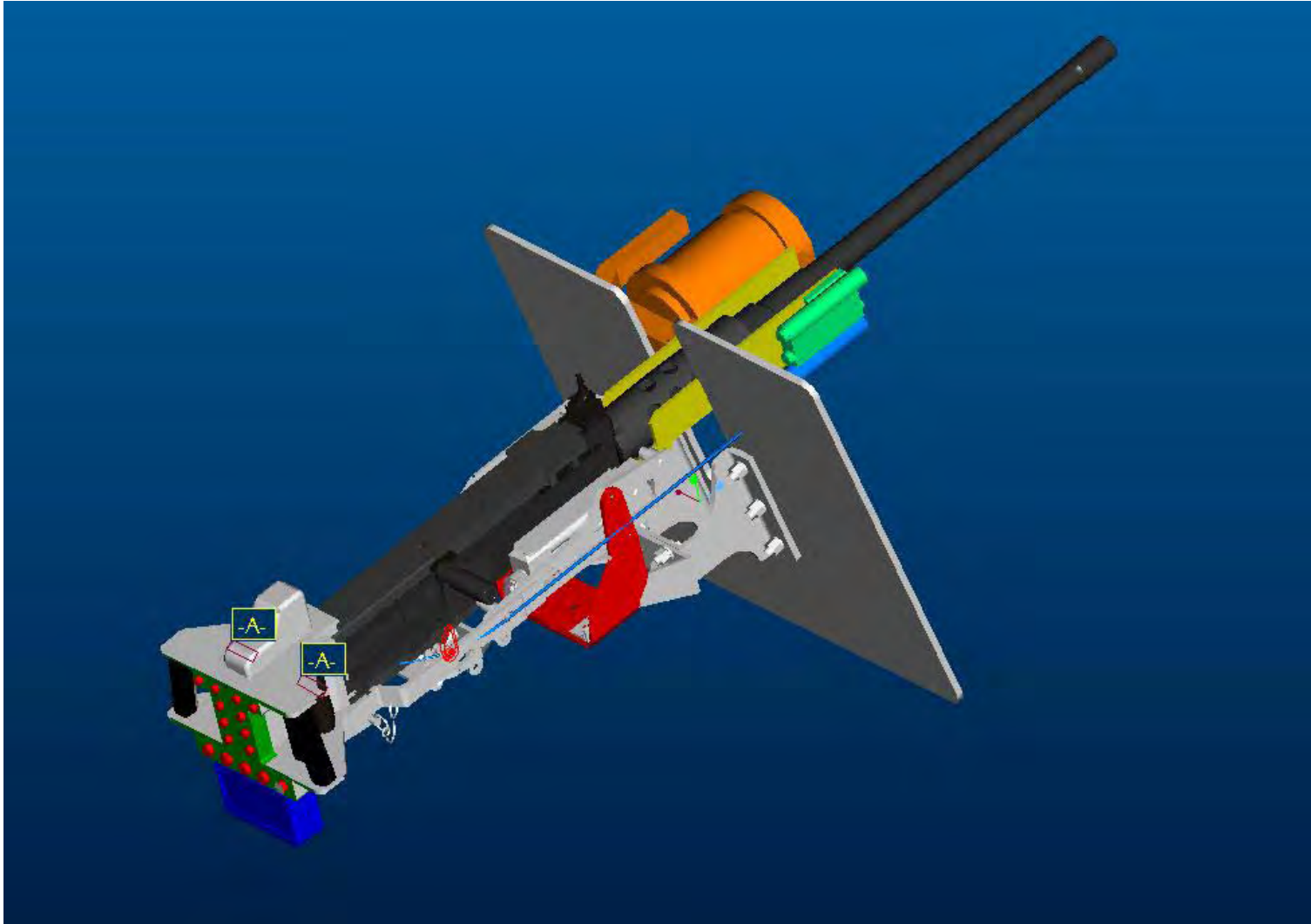


M240N



Mark 48

MDNS-CSW Concept



- ➡ 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



NIGHT

We Own It



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