Above Water Sensors (IWS 2.0)
CAPT Doug Small
PEO IWS 2.0
Above Water Sensors Directorate

Ballistic Missile Defense

Missile Track

Target Illumination

Counter Fire / Counter Battery

Self Defense

Surface Search

Data Collection

Electronic Countermeasures

Navigation

Air Control Marshalling and Approach Control

Area Air Defense

SPY-3 VSR

DDG-1000

CG

SEWIP
AN/SPS-67(V)3/5

AN/SPY-1
AN/SPS-55/64

AN/SPS-48
AN/SPS-49
AN/SPQ-9B
AN/SPS-67/73
ASDS

SLQ-32
AN/SPS-74
DBR

DDG 51 Flt III

AN/SYS-2

CVN

AN/SYS-9B

DDG

CG

BPS

SSN

FFG

LHA/LHD

LPD

NULKA

AMDR

CJR S-Band
CJR X-Band

Distribution Statement A: Approved for Public Release:
Distribution is Unlimited
• Provide upgraded Electronic Attack capability to the Fleet
  – Technique generation capable of addressing advanced threats

• 1 for 1 replacement of SLQ 32 (V) 3/4
  – CVN
  – DDG/CG
  – LHA/LHD

• Schedule
  – Pre Milestone B, ACAT II
  – Tech Dev FY10-12 (ONR InTop)
  – EMD FY13-16
  – Production/fielding FY17
Above Water Sensors (IWS 2.0)
FY12 New Start – Advanced Offboard EW (AOEW)

Objective:
• Develop, procure and deploy multiple ship-launched, long duration platforms equipped with active or passive EW payloads for use in coordination with onboard EW systems to enhance battle group protection against current and future anti-ship missile (ASM) threats

Status:
• New Start Program of Record in FY12
  – Analysis of Alternatives (AoA) planned for FY12
  – Closely tied to SEWIP for onboard coordination

Supporting Efforts:
• RFI for Ship-launched Persistent Countermeasures for EW
  – RFI closed May 2011
  – Generated interest in the AOEW program
  – Focused on platform technologies to support AoA

• Next Generation Countermeasures (NGCM) FNC
  – FNC in progress – will transition to AOEW
  – Demo planned for FY14
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Active Investment Strategies & SBIR Technologies

• IWS 2.0 actively participates in programs where risk reduction efforts and investments can be made for future radar technology and radar system development
  – ManTech
    • The ManTech role in the DoD acquisition process is to anticipate and close gaps in defense manufacturing capabilities and provide a link between technology invention and industrial applications—from system development through sustainment
  – Title III
    • A key objective of the Title III Program is to accelerate the transition of technologies from R&D to affordable production and insertion into defense systems
  – SBIR/STTR
    • Established by Congress with a statutory purpose to strengthen the role of innovative small business concerns in Federally-funded research and development
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Title III

- Title III program has been identified as a linchpin in the AMDR development program
  - AMDR ADM identified high powered amplifiers (HPA) as a critical technology element for radar development, and requires the Navy to demonstrate acceptable risk at MS B
  - DUSD (AS&C) Title III Program and IWS 2.0 have partnered to establish the Gallium Nitride (GaN) on Silicon Carbide (SiC) Radar/EW Monolithic Microwave Integrated Circuit (MMIC) Production Capability Project (“GaN Producibility Program”)
    - Title III GaN Producibility contracts totaling $39M were awarded to TriQuint and Cree in 4QCY10 to mature and refine the manufacturing processes needed to ensure this need is met
- Title III program is leveraging this work to apply to high powered amplifiers for future wide band Electronic Warfare systems
| AMDR | Sundew Technologies, Broomfield, CO | MMIC Coatings and Encapsulation for Non-Hermetic, Low Cost, Transmit/Receive (T/R) Modules | Phase II.5 SBIR (N04-058) |
| AMDR | Group4 Labs, Fremont CA | Innovative Power Amplifier Gate Thermal Mgmt for Active Radar Systems (GaN on Diamond) | Phase II SBIR (N08-170) |
| AMDR | GVD Corporation, Cambridge MA | Innovative Manufacturing Processes and Materials for Affordable Transmit/Receive (T/R) Module Production | Phase II SBIR (N093-187) |
| AMDR | MetaMagnetics, Sharon MA | Low Loss Self-Biased Ferrite Materials for Size and Weight Sensitive Circulator Applications Requiring High Power Handling and High Temperature Stability (Circular Ferrite Improvement) | Phase II SBIR (N093-200) |
| AMDR | Metal Matrix Cast Composites, LLC, Waltham MA | Manufacturing and Materials for Radar/EW Power System Stability | Phase I/II SBIR (N093-209) |
| AMDR | Nuvotronics, Radford VA | MMIC EMI Passivation Coating | Phase II SBIR (N093-212) |
| Legacy Radar Rework/Repair | Resodyn Corporation, Butte MT | Repair and Restore Polymer Thermal Spray Coating and Application System | Phase I/II SBIR (N102-146) |
| AN/SPS-74 | 3 Phoenix, Chantilly, VA | Improved Clutter Management Techniques for High Resolution Radars | Phase II.5 SBIR (N07-213) |
| AMDR | MetaMagnetics, Sharon MA | Manufacturing and Materials for Radar/EW Power System Stability | Phase II SBIR (N093-209) |
| AMDR | 3 Phoenix, Chantilly, VA | Advanced materials for Shipboard Radome Application | Phase II.5 SBIR (N07-213) |
| AMDR | Composite Technology Development, Lafayette, CO | Improved Clutter Management Techniques for High Resolution Radars | Phase II SBIR (N102-148) |
| AMDR | Nitronex, Durham, NC | Diamond on GaN Power Amplifier Processes | Phase I/II SBIR (N08-170) |
| AMDR | MaXentric Technologies LLC, Fort Lee NJ | High Performance Cost Effective Circulator/Isolators | Phase I SBIR (N111-035) |
| AMDR | TeraSys Technologies LLC, Honolulu, HI | High Performance Cost Effective Circulator/Isolators | Phase I SBIR (N111-035) |
| AMDR | MPT Corp., Brea CA | High power monolithic microwave limiter | Phase I SBIR (N111-052) |
| AMDR | Nuvotronics, Radford VA | High power monolithic microwave limiter | Phase I SBIR (N111-052) |
| AMDR | Omega Micro, West Lafayette, IN | High Performance GaN Power Amplifier/TR Module Packaging | Phase I SBIR (N111-034) |
| AMDR | Arkansas Power Electronics Int'l (APEI), Fayetteville, AR | High Performance GaN Power Amplifier/TR Module Packaging | Phase I SBIR (N111-034) |
| AMDR | Si2 Technologies, North Billerica MA | Wide Bandwidth High Performance Cost Effective Antenna Elements | Phase I SBIR (N111-040) |
| AMDR | Wang Electro-Opto, Marietta, GA | Wide Bandwidth High Performance Cost Effective Antenna Elements | Phase I SBIR (N111-040) |
| AMDR | Active Spectrum, Foster City CA | Tunable Bandstop Filters for Suppression of Co-site Interference and Jamming Sources | Phase I STTR(N111-T016) |
| AMDR | FreeForm Wave Technologies, Los Angeles CA | Tunable Bandstop Filters for Suppression of Co-site Interference and Jamming Sources | Phase I STTR(N111-T016) |
| AMDR | Indiana Microelectronics, LLC, West Lafayette IN | Tunable Bandstop Filters for Suppression of Co-site Interference and Jamming Sources | Phase I STTR(N111-T016) |
• Target Affordability and Control Cost Growth
  – Established Should Cost estimates for AMDR and SEWIP
  – Extending methodology to Sustainment systems
  – Aggressive configuration/change control

• Incentivize Productivity & Innovation in Industry
  – AMDR competition has stimulated $100M+ in IRAD
  – SEWIP Block 2 Development stimulated IR&D in multiple suppliers which enabled a competitive selection process for EMD
  – Actively partnering small/medium businesses/products with prime contractors

• Promote Real Competition
  – AMDR competition for EMD, production
  – SEWIP Block 2 competed EMD effort, plan to compete production
  – SEWIP Block 3 will leverage competitive development of FNC effort (InTop), compete for EMD, compete production
  – Actively seeking means of inserting competition in ongoing developments
  – Actively working to compete existing production contracts
  – Aggressive on data rights, open architecture (technical and business)
Question & Answer Period