CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION						DATE May 2009	
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**			R-1 ITEM NOMENCLATURE **0604300N/SC-21 TOTAL SHIP SYSTEM ENGINEERING**				
COST (In Millions)	FY 2008	FY 2009	FY 2010				
Total PE Cost	622.812	596.109	0.000				
2464 / DD(X) Sys Design, Dev & Integration	442.141	351.278	0.000				
2735 / VSR - Volume Search Radar	2.408	0.000	0.000				
3105 / BLK II Seeker Technology Development	0.973	0.000	0.000				
3106 / Combat System Integration	0.819	57.467	0.000				
3107 / CG(X) DEVELOPMENT	84.078	84.518	0.000				
4009 / Advanced Gun System (AGS) on DD(X)	71.956	96.563	0.000				
9999 / CONGRESSIONAL ADDS	20.437	6.283	0.000				

A. MISSION DESCRIPTION:

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This Program Element (PE) provides funds for development of the DDG 1000 Class of U. S. Navy surface combatants, and CG(X), next generation cruiser development. The mission of the DDG 1000 class is to provide affordable and credible independent forward presence/deterrence and operate as an integral part of Naval, Joint or Combined Maritime Forces. DDG 1000 will provide advanced land attack capability in support of the ground campaign and contribute to Naval, Joint or Combined battlespace dominance in littoral operations. DDG 1000 will establish and maintain surface and sub-surface superiority, provide local air defense, and incorporate signature reduction to operate in all threat environments. DDG 1000 will have seamless Joint Interoperability to integrate all source information for battlespace awareness and weapons direction. CG(X) development efforts will mature the CG(X)design through Milestone B. All funding for FY 10 was realigned to PE 0204202N for DDG-1000 and to PE 0204201N for CG(X).

The following Congressional adds are contained in this Program Element:

FY08 Congressional Adds:

-Project 9999-Congressional Adds: $20.437 - This project consists of the following FY08 Congressional adds: Floating Area Network, Permanent Magnet Motor, Wireless Maritime Inspection System, Bio Nano Micro Electro-Mechanical Systems (MEMS) for Defense Applications, SmartLink Planar Scanner Antenna Modernization, and Advanced Wireless Encryption Module.

FY09 Congressional Adds:

-Project 9999 - Congressional Adds: $6.283 - -Floating Area Network, Bio Nano Micro-Electro-Mechanical Systems (MEMS) Center for Defense Applications

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2, RDT&E BUDGET ITEM JUSTIFICATION (CONTINUATION)		DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	R-1 ITEM NOMENCLATURE **0604300N/SC-21 TOTAL SHIP SYSTEM ENGINEERING**	

B. PROGRAM CHANGE SUMMARY:

Funding:	FY 2008	FY 2009	FY 2010
FY09 President's Budget	629.323	678.936	822.728
FY10 President's Budget	622.812	596.109	0.000
Total Adjustments	-6.511	-82.827	-822.728
(U) Summary of Adjustments			
Congressional Rescissions	0.000	0.000	0.000
Congressional Adjustments	0.000	-82.519	0.000
SBIR/STTR/FTT Assessment	-5.735	0.000	0.000
Program Adjustments	0.000	-0.094	-822.728
Rate/Misc Adjustments	-0.776	-0.214	0.000
Total	-6.511	-82.827	-822.728

All funding for FY 10 was realigned to PE 0204202N for DDG-1000 and to PE 0204201N for CG(X).

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE May 2009		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604300N/SC-21 TOTAL SHIP SYSTEM ENGINEERING**				PROJECT NUMBER AND NAME **2464/DD(X) Sys Design, Dev & Integration**		
COST (In Millions)	FY 2008	FY 2009	FY 2010				
Project Cost	442.141	351.278	0.000				
RDT&E Articles Qty	0	0	0				

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project encompasses DDG 1000 development efforts required to deliver the Flight I DDG 1000 Class Ships. Major efforts include software requirements analysis, architectural and design code and unit testing, integration, qualification testing, and Independent Verification and Validation (IV&V) for software releases 4-6; hullform testing at Naval Surface Warfare Center, Carderock; conducting testing communication and sensor aperture cosite and electromagnetic interference risk reductions testing for critical arrays; planning for Integrated Power Systems (IPS) and ship control system testing and integration; Tomahawk restrained firing test; integration of Line of Sight (LOS)/Below Line of Site (BLOS) communication capability; and develop an alternative to Full Ship Shock Trials (FSSTs). In FY 10, the funding has been realigned to PE 0204202N.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604300N/SC-21 TOTAL SHIP SYSTEM ENGINEERING**	PROJECT NUMBER AND NAME **2464/DD(X) Sys Design, Dev & Integration**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2008	FY 2009	FY 2010
Accomplishments/Effort/Subtotal Cost	408.916	312.759	0.000
RDT&E Articles Quantity	0	0	0

Development of the DDG 1000 Flight 1 software, Commercial Off the Shelf/Government Off the Shelf (COTS/GOTS) software acquisition, code and unit testing, integration, qualification testing, and Independent Verification and Validation (IV&V). Development of a total system software architecture that defines the relationships and interfaces among the software segments, elements, components and/or configuration items using an incremental release process (Software (SW) Releases 4-6). Conduct the following events for the remaining software releases: Software Release 4 - completed, Software Integration and Test (SWIT), Software Integration Readiness Review (SIRR), Test Readiness Review (TRR), System Acceptance Testing (SAT) and Software Certification Panel (SCP) in FY08; Software(SW) Release 5 - completed SW Preliminary Design Review (S-PDR), SW Critical Design Review (S-CDR) and entered into the Design, Code, Test and Integration phase in FY08; complete the Design, Code, Test and Integration phase; conduct Software Integration and Test (SWIT) and Software Integration Readiness Review (SIRR) activities in FY09; Software Release 6 - conducted SW system engineering activities in FY08; conduct Software Specification Review (SSR) and begin preliminary design activities in FY09; Conduct all developmental software test planning, conduct test data analysis and reporting in accordance with the DDG 1000 TEMP. Perform total ship system design analysis. Perform systems engineering, develop, and fully integrate into the DDG 1000 System an Electric Ship (ES) system for DDG 1000. Integrate Next Generation Command and Control Processor (NGC2P) by finalizing Data Link Concept of Operations, complete hardware engineering, finalize software requirements definition, commence software development and integration, plan for software testing and certification. Develop, test and integrate the Common Display System (CDS) consoles and medium/large screen displays.

	FY 2008	FY 2009	FY 2010
Accomplishments/Effort/Subtotal Cost	29.225	33.519	0.000
RDT&E Articles Quantity	0	0	0

Completion and testing of ship and warfare system engineering development models. Complete hullform testing at Naval Surface Warfare Center (NSWC)Carderock. Planning for IPS and ship control system (SCS) testing and integration at NSWC Philadelphia. Conduct communication and sense aperture cosite and electromagnetic interference risk reduction testing for critical arrays at the Wallops Island Test Facility. Conducted Tomahawk restrained firing test to verify Advanced Vertical Launching System (AVLS) protection measures. Conduct developmental testing and operation evaluation in accordance with TEMP. Conduct Live Fire Testing & Vulnerability Analysis in accordance with TEMP. Conduct signature range Non-Recurring Engineering (NRE) to upgrade ranges to support DDG 1000 test and evaluation.

	FY 2008	FY 2009	FY 2010
Accomplishments/Effort/Subtotal Cost	4.000	5.000	0.000
RDT&E Articles Quantity	0	0	0

This funding is to support DDG 1000 specific testing on the Self Defense Test Ship.

CLASSIFICATION:	UNCLASSIFIED		
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION (CONTINUATION)			DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604300N/SC-21 TOTAL SHIP SYSTEM ENGINEERING**	PROJECT NUMBER AND NAME **2464/DD(X) Sys Design, Dev & Integration**	

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2008	FY 2009	FY 2010						Total Cost
BLI 5300/SCN	0.000	0.000	309.636						309.636
PE0204202N/RDT&EN	0.000	0.000	539.053						539.053
BLI 211900 / SCN	2,906.867	1,504.297	1,084.161						5,495.325

D. ACQUISITION STRATEGY:

The funding in this program element supports the DDG 1000/DDG 1001 dual lead ship acquisition strategy.

E. MAJOR PERFORMERS:

Major Contractors - Raytheon, Lockheed Martin, BAE, Northrop Grumman Ship Systems, BIW

Government Field Activities - NSWC Carderock, NSWC Dahlgren, NSWC Port Hueneme

Universities - John Hopkins University, Applied Physics Lab (APL/JHU)

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE May 2009		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604300N/SC-21 TOTAL SHIP SYSTEM ENGINEERING**				PROJECT NUMBER AND NAME **2735/VSR - Volume Search Radar**		
COST (In Millions)	FY 2008	FY 2009	FY 2010				
Project Cost	2.408	0.000	0.000				
RDT&E Articles Qty	0	0	0				

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This project provides funds for the development of the S-Band Volume Search Radar (VSR) in association with DDG 1000. This provides DDG 1000 and other applicable surface ships with an affordable, high performance air search radar. This system is based on solid state, active array radar technology and will provide search, detect, and track while dramatically reducing manning and life-cycle costs associated with multiple systems that perform these functions today. VSR provides long range above-the-horizon surveillance and timely cueing to Multi-Function Radar (MFR). A Test Article was available in FY 06 to support Developmental Test/Operational Assessment (DT/OA) land-based testing.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604300N/SC-21 TOTAL SHIP SYSTEM ENGINEERING**	PROJECT NUMBER AND NAME **2735/VSR - Volume Search Radar**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2008	FY 2009	FY 2010
Accomplishments/Effort/Subtotal Cost	2.408	0.000	0.000
RDT&E Articles Quantity	0	0	0

Government Technical Engineering Services for VSR Engineering and Manufacturing Development. Performed oversight and assessment of VSR Engineering and Manufacturing Development efforts including Test and Evaluation. Supported VSR Land Based Testing at the Surface Warfare Engineering Facility (SWEF) at NWSC PHD through 2nd quarter FY08. VSR will be moved to Wallops Island Engineering Test Center (WIETC) during 3rd quarter FY08 to continue VSR Land Based Testing.

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2008	FY 2009	FY 2010						Total Cost
BLI 5300 / SCN	0.000	0.000	309.636						309.636
PE0204202N / RDT&EN	0.000	0.000	539.053						539.053
BLI 211900 / SCN	2,906.867	1,504.297	1,084.161						5,495.325

D. ACQUISITION STRATEGY:

The funding in this program element supports the DDG 1000/DDG 1001 dual lead ship acquisition strategy.

E. MAJOR PERFORMERS:

DDG1000 Design Agent - Northrop Grumman Ship Systems

Major Subcontractors - Raytheon, Lockheed Martin

Government Field Activities - NAWC China Lake, NAWC Pt Mugu, NAWC TSD, NSWC Carderock, NSWC Crane, NSWC Dahlgren, NSWC Newport, NSWC Panama City, NSWC Port Hueneme, Naval Research Laboratory, SPAWAR Systems Center

Universities - John Hopkins University / Applied Physics Laboratory, Applied Research Labs at University of Texas, University of Washington and Penn State University, Georgia Tech Research Institute

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE May 2009		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604300N/SC-21 TOTAL SHIP SYSTEM ENGINEERING**				PROJECT NUMBER AND NAME **3105/BLK II Seeker Technology Development**		
COST (In Millions)	FY 2008	FY 2009	FY 2010				
Project Cost	0.973	0.000	0.000				
RDT&E Articles Qty	0	0	0				

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

CG (X), the next generation cruiser, will focus on providing multi-mission capabilities as part of the 21st Century family of surface combatants. CG (X) is the follow-on to the CG-47 class as they reach the end of their 35 year service life. This project encompasses efforts for the missile seeker development and integration within the mission system computer programs into the CG (X) class mission system. These missile seeker development and missile and combat system integration efforts include systems engineering, analysis, programmatic support, computer program development/modification, interface design, technical documentation, test site development and system testing to ensure fully functional systems integration.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604300N/SC-21 TOTAL SHIP SYSTEM ENGINEERING**	PROJECT NUMBER AND NAME **3105/BLK II Seeker Technology Development**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2008	FY 2009	FY 2010
Accomplishments/Effort/Subtotal Cost	0.973	0.000	0.000
RDT&E Articles Quantity	0	0	0

FY08: Initiated CG (X) Missile Seeker Preliminary Design studies and analysis to support missile and total ship system requirements documentation.

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2008	FY 2009	FY 2010						Total Cost
PE 0204201N / RDT&EN	0.000	0.000	150.022						150.022

D. ACQUISITION STRATEGY:

TBD - The Acquisition Strategy is currently in development in accordance with concept resulting from Analysis of Alternative and is scheduled to be completed following Milestone A.

E. MAJOR PERFORMERS:

Contractors - TBD - Based on results of Analysis of alternatives developed for Milestone A and the Acquisition Strategy scheduled to be finalized after Milestone A.
Field Activities: NSWC Carderock, NSWC Dahlgren, NSWC Port Hueneme
Universities - JHU APL

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE May 2009		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604300N/SC-21 TOTAL SHIP SYSTEM ENGINEERING**				PROJECT NUMBER AND NAME **3106/Combat System Integration**		
COST (In Millions)	FY 2008	FY 2009	FY 2010				
Project Cost	0.819	57.467	0.000				
RDT&E Articles Qty	0	0	0				

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

CG (X), the next generation cruiser, will focus on providing multi-mission capabilities as part of the 21st Century family of surface combatants. CG (X) is the follow-on to the CG-47 class as they reach the end of their 35 year service life. This project encompasses efforts for the integration of the CG (X) Combat System, C4I, Air, and Ship systems including materiel analysis, and integration of the Combat System with the CG (X) Mission System. Integration efforts will include communications, electronics, air, command and control, Combat System interface requirements, definition, system integration, and test and evaluation. In FY10, funding has been transferred to PE 0204201N, which encompasses all CG (X) Projects.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604300N/SC-21 TOTAL SHIP SYSTEM ENGINEERING**	PROJECT NUMBER AND NAME **3106/Combat System Integration**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2008	FY 2009	FY 2010
Accomplishments/Effort/Subtotal Cost	0.000	51.390	0.000
RDT&E Articles Quantity	0	0	0

FY09: Conduct requirements development for combat system to include architecture, performance analysis, C4ISR integrated system design, air, modeling and simulation, and test planning.

	FY 2008	FY 2009	FY 2010
Accomplishments/Effort/Subtotal Cost	0.000	1.980	0.000
RDT&E Articles Quantity	0	0	0

FY09: Mature combat system, C4I, and air risk reduction for critical technology elements (CTEs) including technology maturity and integration risks.

	FY 2008	FY 2009	FY 2010
Accomplishments/Effort/Subtotal Cost	0.819	4.097	0.000
RDT&E Articles Quantity	0	0	0

FY08: Development of top level C4I, air, and combat system acquisition and requirements documents to support CG(X) decision reviews (Gate & Milestone). FY09: Continue development of top level C4I, air, and combat system acquisition and requirements documents to support CG(X) decision reviews (Gate and Milestone).

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2008	FY 2009	FY 2010						Total Cost
PE0204201N/ RDT&E, N	0.000	0.000	150.022						150.022
PE 0604501N Project 3186 / RDT&E, N	92.920	106.250	190.046						389.216

D. ACQUISITION STRATEGY:

TBD - The Acquisition Strategy is currently in development in accordance with concept resulting from Analysis of Alternative and is scheduled to be completed following Milestone A.

E. MAJOR PERFORMERS:

Contractors - Alion

Field Activities - NSWC Dahlgren, NSWC Port Hueneme, NUWC Newport, SSC San Diego, SSC Charleston, NSWC Carderock

Universities - JHU APL, Carnegie Mellon FFRDCs - MITRE SYSCOMs - NAVAIR, PEO C4I

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE May 2009		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604300N/SC-21 TOTAL SHIP SYSTEM ENGINEERING**				PROJECT NUMBER AND NAME **3107/CG(X) DEVELOPMENT**		
COST (In Millions)	FY 2008	FY 2009	FY 2010				
Project Cost	84.078	84.518	0.000				
RDT&E Articles Qty	0	0	0				

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

CG (X), the next generation cruiser, will focus on providing multi-mission capabilities as part of the 21st Century family of surface combatants. CG (X) is the follow-on to the CG-47 class as they reach the end of their 35 year service life. This project encompasses efforts for total ship system development and integration of Hull, Mechanical and Electrical (HM&E) and shipboard systems into the CG (X) class, as well as integration of communications, electronics, air, command and control, surveillance, shipboard systems, and mission system computer programs into the CG (X) class mission system. These development and integration efforts include materiel analysis, technology development, systems engineering, computer program development, interface design, technical documentation, and system testing to ensure a fully functional CG(X) system design. This project will mature the CG (X) design through several ship design cycles and baselines. Preparation and execution of a program level Preliminary Design Review (PDR) and Critical Design Review (CDR) will occur through these efforts. In FY10, funding has been transferred to PE 0204201N, which encompasses all CG (X) Projects.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604300N/SC-21 TOTAL SHIP SYSTEM ENGINEERING**	PROJECT NUMBER AND NAME **3107/CG(X) DEVELOPMENT**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2008	FY 2009	FY 2010
Accomplishments/Effort/Subtotal Cost	10.000	14.250	0.000
RDT&E Articles Quantity	0	0	0

FY08: Initiated advanced nuclear propulsion systems requirements analysis. FY09: Conduct research and development of Advanced Nuclear Propulsion Systems for CG (X).

	FY 2008	FY 2009	FY 2010
Accomplishments/Effort/Subtotal Cost	5.036	6.000	0.000
RDT&E Articles Quantity	0	0	0

FY08: Initiated risk reduction for Critical Technology Elements (CTEs) including technology maturity, and manufacturing feasiblity. FY09: Continued risk reduction for Critical Technology Elements (CTEs) including technology maturity and manufacturing feasibility.

	FY 2008	FY 2009	FY 2010
Accomplishments/Effort/Subtotal Cost	69.042	64.268	0.000
RDT&E Articles Quantity	0	0	0

FY08: Developed top level Total Ship System Requirements documents. Reviewed and evaluated total ship system requirements, capabilities, cost, and technical feasibility of the total ship system to develop a materiel solution. Develop program documentation to support CG(X) decision reviews (Gate and Milestone). FY09: Continue development of program documentation to support CG(X) decision reviews (Gate and Milestone). Continue to refine requirements, capabilities, cost, and technical feasibility of the total ship system.

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2008	FY 2009	FY 2010						Total Cost
PE0204201N/RDT&E, N	0.000	0.000	150.022						150.022
PE0604501N Project 3186 / RDT&E, N	92.920	106.250	190.046						389.216

D. ACQUISITION STRATEGY:

TBD - The Acquisition Strategy is currently in development in accordance with concept resulting from Analysis of Alternative and is scheduled to be completed following Milestone A.

E. MAJOR PERFORMERS:

Contractors - TBD - Based on results of Analysis of alternatives developed for Milestone A and the Acquisition Strategy scheduled to be finalized after Milestone A.

Field Activities - NSWC Dahlgren, NSWC Port Hueneme, NSWC Carderock, SSC San Diego, SSC Charleston; Universities - JHU/APL, Carnegie Mellon; FFRDC - MITRE; SYSCOMs - PEO C4I, NAVAIR

CLASSIFICATION:	UNCLASSIFIED						
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION					DATE May 2009		
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604300N/SC-21 TOTAL SHIP SYSTEM ENGINEERING**				PROJECT NUMBER AND NAME **4009/Advanced Gun System (AGS) on DD(X)**		
COST (In Millions)	FY 2008	FY 2009	FY 2010				
Project Cost	71.956	96.563	0.000				
RDT&E Articles Qty	0	0	0				

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

These funds provide for the development of the Advanced Gun System (AGS) and the development and qualification of the Long Range Land Attack Projectile (LRLAP) associated with the development of DDG 1000. The AGS will consist of a major caliber gun, an automated ammunition handling system, and a family of munitions/propelling charges. The AGS will, at a minimum, meet the Land Attack and Surface Dominance Missions assigned to the gun system. The system will provide a high rate of fire (approximately 10 rounds per minute) with a magazine capacity sufficient in size for meeting USMC operational requirements. LRLAP will be stored throughout its life cycle in an 8 round pallet which is handled by the AGS magazine. By palletizing the munition, AGS is able to significantly reduce manning and improve munition reliability, safety and resupply. The LRLAP EDM guided flight tests began in Dec 2004. System Design and Development began in FY06 with final land based qualification testing planned in FY09. LRLAP will deliver a high explosive unitary payload with Global Positioning System (GPS) accuracy. In FY 10, funding has been realigned to PE 0204202N.

CLASSIFICATION:	UNCLASSIFIED	
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION		DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604300N/SC-21 TOTAL SHIP SYSTEM ENGINEERING**	PROJECT NUMBER AND NAME **4009/Advanced Gun System (AGS) on DD(X)**

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2008	FY 2009	FY 2010
Accomplishments/Effort/Subtotal Cost	8.700	26.832	0.000
RDT&E Articles Quantity	2	0	0

AGS Qualification test Assets.

	FY 2008	FY 2009	FY 2010
Accomplishments/Effort/Subtotal Cost	47.143	48.384	0.000
RDT&E Articles Quantity	0	0	0

LRLAP System Design, Development and qualification testing.

	FY 2008	FY 2009	FY 2010
Accomplishments/Effort/Subtotal Cost	16.113	21.347	0.000
RDT&E Articles Quantity	0	0	0

Procurement of LRLAP rounds for qualification testing.

C. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. and Name	FY 2008	FY 2009	FY 2010						Total Cost
PE0204202N / RDT&EN	0.000	0.000	539.053						539.053
BLI 5300 / SCN	0.000	0.000	309.636						309.636
BLI 211900 / SCN	2,906.867	1,504.297	1,084.161						5,495.325

D. ACQUISITION STRATEGY:

The funding in this program element supports the DDG 1000/DDG1001 dual lead ship acquisition strategy.

E. MAJOR PERFORMERS:

Major Contractors- BAE Systems, Lockheed Martin and Northrop Grumman Ship Systems

Field Activities - NSWC Carderock, NSWC Dahlgren, NSWC Port Hueneme, NSWC Port Hueneme Louisville detachment, NSWC Indian Head

Universities - N/A

CLASSIFICATION:	UNCLASSIFIED		
EXHIBIT R-2a, RDT&E PROJECT JUSTIFICATION			DATE May 2009
APPROPRIATION/BUDGET ACTIVITY **RDTEN/BA 5**	PROGRAM ELEMENT NUMBER AND NAME **0604300N/SC-21 TOTAL SHIP SYSTEM ENGINEERING**	PROJECT NUMBER AND NAME **9999/CONGRESSIONAL ADDS**	

B. ACCOMPLISHMENTS/PLANNED PROGRAM:

	FY 2008	FY 2009	FY 2010
9A37A SmartLink Planar Scanner Antenna Modernization	1.543	0.000	0.000
RDT&E Articles Quantity	0	0	0

Congressional add funds the development, design, and implementation of low-cost, low-RCS, small planar scanner antenna for tactical SATCOM on Navy surface ships, aircraft and vehicles. Goals demonstrate planar scanner technology for war-fighter use.

	FY 2008	FY 2009	FY 2010
9C11A Advanced Wireless Encryption Module	2.314	0.000	0.000
RDT&E Articles Quantity	0	0	0

Congressional add funds the development of a flexible module that can be used to upgrade the security of a wireless local area network (WLAN) currently being used by the Navy. The project will create an affordable and advanced encryption module that will allow the use of the WLAN for communications up to the SECRET level.

	FY 2008	FY 2009	FY 2010
9833A Floating Area Network	3.856	4.787	0.000
RDT&E Articles Quantity	0	0	0

Congressional add funds the development of a Floating Area Network (FAN) enabling a direct Line of Sight (LOS), wireless, Transmission Control Protocol/Internet Protocol (TCP/IP) network among intra-battle group ships.

	FY 2008	FY 2009	FY 2010
9834A Permanent Magnet Motor	8.674	0.000	0.000
RDT&E Articles Quantity	0	0	0

Congressional add funds the development and factory testing of specific technology solutions in the areas of motor and component thermal management, insulation design and breakdown mechanisms, and motor electrical component reliability.

	FY 2008	FY 2009	FY 2010
9836A Wireless Maritime Inspection System	0.965	0.000	0.000
RDT&E Articles Quantity	0	0	0

Congressional add funds the development of a wireless capability that aids Maritime Interdiction Operations (MIO) information exchange.

	FY 2008	FY 2009	FY 2010
9A35A Bio/Nano-MEMS Center for Defense Applications	3.085	1.496	0.000
RDT&E Articles Quantity	0	0	0

Congressional add funds the University of Louisville Bio/Nano-MEMS Center that will create a multi-disciplinary science and engineering team to carry out comprehensive research, design and testing directed toward insertion of advanced, reliable MEMS devices into fielded military systems.