

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: <b>May 2009</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RESEARCH DEVELOPMENT TEST &amp; EVALUATION, NAVY / BA-6</b>					R-1 ITEM NOMENCLATURE 0604759N MAJOR T&E INVESTMENT			
COST (\$ in Millions)	FY 2008	FY 2009	FY 2010					
Total PE Cost	41.328	51.525	44.844					
2195 T&E INVESTMENT	37.375	41.751	44.844					
9999 CONGRESSIONAL ADDS	3.953	9.774						
<p><b>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</b> This project improves visibility and commonality of Test and Evaluation (T&amp;E) resources across the Service for Major T&amp;E investment funding. These funds correct major deficiencies, improve T&amp;E capabilities, and increase T&amp;E support effectiveness. The T&amp;E Investment project provides improved test capabilities at the following test facilities: the Naval Undersea Warfare Center Detachment Atlantic Undersea Test and Evaluation Center (NAVUNSEAWARCEN DET AUTEC), Andros Island, Bahamas; the NanOOSE and Dabob ranges of the Naval Undersea Warfare Center Division Keyport (NAVUNSEAWARCENDIV Keyport), Keyport, WA; the Sea Range, Land Range, Electronic Combat Range, Targets, Ordnance T&amp;E Facility, Test Wing Pacific, and the Air Vehicle Modification and Instrumentation facility located at the Naval Air Warfare Center Weapons Division (NAVAIRWARCENWPN DIV), Point Mugu, CA and China Lake, CA; and the Atlantic Test Range, Air Combat Environment T&amp;E Facility, Electromagnetic Environmental Effects, Test Wing Atlantic, Targets, and the Propulsion Systems Evaluation Facility (PSEF) located at the Naval Air Warfare Center Aircraft Division (NAVAIRWARCENACDIV), Patuxent River, MD and the test capabilities located at the Pacific Missile Range Facility, Kauai, HI.</p>								

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**B. PROGRAM CHANGE SUMMARY:**

Funding:	FY08	FY09	FY10
President's Budget 2009:	40.885	42.391	46.239
President's Budget 2010:	41.328	51.525	44.844
Total Adjustments	0.443	9.134	-1.395

Summary of Adjustments

Congressional Rescissions			
Congressional Adjustments		9.275	
SBIR/STTR/FTT Assessments	0.443		
Program Adjustments			-1.300
Rate/Misc Adjustments		-0.141	-0.095
Subtotal	0.443	9.134	-1.395

Schedule:

Not Applicable

Technical:

Not Applicable

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COST (\$ in Millions)		FY 2008	FY 2009	FY 2010				
Project Cost		<b>37.375</b>	<b>41.751</b>	<b>44.844</b>				
RDT&E Articles Qty		<b>Not Applicable.</b>						

**A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:** This project improves visibility and commonality of Test and Evaluation (T&E) resources across the Service for Major T&E investment funding. These funds correct major deficiencies, improve T&E capabilities, and increase T&E support effectiveness. The T&E Investment project provides improved test capabilities at the following test facilities: the Naval Undersea Warfare Center Detachment Atlantic Undersea Test and Evaluation Center (NAVUNSEAWARCEN DET AUTEK), Andros Island, Bahamas; the Nanoose and Dabob ranges of the Naval Undersea Warfare Center Division Keyport (NAVUNSEAWARCENDIV Keyport), Keyport, WA; the Sea Range, Land Range, Electronic Combat Range, Targets, Ordnance T&E Facility, Test Wing Pacific, and the Air Vehicle Modification and Instrumentation facility located at the Naval Air Warfare Center Weapons Division (NAVAIRWARCENWPNDIV), Point Mugu, CA and China Lake, CA; and the Atlantic Test Range, Air Combat Environment T&E Facility, Electromagnetic Environmental Effects, Test Wing Atlantic, Targets, and the Propulsion Systems Evaluation Facility (PSEF) located at the Naval Air Warfare Center Aircraft Division (NAVAIRWARCENACDIV), Patuxent River, MD and the test capabilities located at the Pacific Missile Range Facility, Kauai, HI.

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**B. Accomplishments/Planned Program**

<b>Undersea Range Investments</b>	FY 08	FY 09	FY 10	
Accomplishments/Effort/Subtotal Cost	9.019	9.883	9.989	
RDT&E Articles Quantity <b>Not Applicable.</b>				

Undersea Range Investments - This effort funds the modernization, upgrades, and new test capabilities required at the Navy's Major Range Test Facility Base (MRTFB) undersea ranges Naval Undersea Warfare Center Detachment Atlantic Undersea Test and Evaluation Center (NAVUNSEAWARCEN DET AUTEC), Andros Island, Bahamas; the Nanoose and Dabob ranges of the Naval Undersea Warfare Center Division Keyport (NAVUNSEAWARCENDIV Keyport), Keyport, WA.

AUTEC - The modernization of the deep water hydrophone acoustic signal processors; the modernization of communication links from AUTEC's main site to its downrange sites two, three and four; the modernization and upgrade of voice and data communications links to submarines on the range; the development of new range post-processing software and modernized hardware, the refurbishment and service life extension of the range vessel, upgrade the aircraft sonobuoy simulation and stimulation capability, upgrade and enhance the electronic warfare (EW) simulator capability.

Nanoose and Dabob - The procurement and integration of additional hydrophone arrays; the addition of broadband capable bottom mounted targets to the Nanoose and Dabob ranges; the modernization of acoustic acquisition and processing systems, the overhaul of range craft, the upgrade of the optical tracking and surveillance system.

Naval Surface Warfare Center Port Hueneme (NSWC PHD) - The dry-dock and refurbishment of the self defense test ship.

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**B. Accomplishments/Planned Program**

Open Air Range Investments	FY 08	FY 09	FY 10	
Accomplishments/Effort/Subtotal Cost	24.018	25.804	20.782	
RDT&E Articles Quantity <b>Not Applicable.</b>				

Open Air Range Investments - This effort funds the modernization and upgrades of existing capabilities and the development of new test capabilities required at the MRTFB open air ranges :

Sea Range - The modernization of the fifth tracking radar; the development of target launch, airborne telemetry, optics, flight termination capabilities for the range support aircraft; the upgrade of video capabilities; the modernization of the mobile radio communications system; the modernization of range timing and sensor interface; the addition of enhanced flight termination system; the modernization of the telemetry antenna systems; the upgrade of telemetry instrumentation recorders; the modernization of Global Positional System (GPS) tracking systems; the development of a Range Capabilities Master Plan (RCMP); the replacement of fiber terminal equipment to upgrade communications links from San Nicolas Island (SNI) to the mainland; the procurement of a doppler radar system; the modernization of sea surface surveillance radars; the modernize crypto equipment: and the upgrade SNI telemetry equipment to allow remote control.

Land Range - The upgrade of video capabilities; the modernization of the mobile radio communications system; the modernization of range timing and sensor interface; the addition of enhanced flight termination system; the modernization of the telemetry antenna systems; the upgrade of telemetry instrumentation recorders; the modernization of Global Positional System (GPS) tracking systems; the development of a Range Capabilities Master Plan (RCMP); the development of an Operational Range Clearance Plan (ORCP); the clean up of expended depleted uranium, and the modernization of the Kineto Tracking Mounts (KTM).

Electronic Combat Range -The upgrade of video capabilities; the modernization of the mobile radio communications system; the modernization of range timing and threat system interface; the modernization of two Time Space Position Information (TSPi) tracking radars; the replacement and upgrade of telemetry instrumentation recorders; the modernization of Global Positional System (GPS) tracking systems; the development of a Range Capabilities Master Plan (RCMP); the modernization of the communication and fiber infrastructure; the development of an Operational Range Clearance Plan (ORCP); the clean up of expended depleted uranium; and the modernize crypto equipment.

Air Vehicle Modification and Instrumentation - The procurement of aircraft machining and prototyping equipment

Atlantic Test Range - The upgrade of the Infra-Red signature measurement system; the replacement and upgrade of telemetry instrumentation recorders; the modernization of Global Positional System (GPS) tracking systems; the development of a Range Capabilities Master Plan (RCMP); the modernization of the Multiple Target Instrumented Radar (MIR); and the replacement of communication and data fiber between locations around the bay.

Pacific Missile Range Facility - The modernization of optical and radar tracking equipment, telemetry systems and the Mobile Aerial Target Support System (MATSS).

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**B. Accomplishments/Planned Program**

Test Facilities Investments	FY 08	FY 09	FY 10	
Accomplishments/Effort/Subtotal Cost	4.338	6.064	14.073	
RDT&E Articles Quantity <b>Not Applicable.</b>				

Test Facilities Investments - This effort funds the modernization and upgrades of existing capabilities and the development of new test capabilities required at the MRTFB test facilities (Air Combat Environment Test and Evaluation Facility (ACETEF), Electromagnetic Environmental Effects (E3), Propulsion Systems Evaluation Facility (PSEF), Ordnance T&E Facility).

ACETEF - The modernization of manned flight simulator computer systems and software; the development of a simulation environment visualization and debriefing system and software; the development of High Power Radio Frequency (RF) Carts; the acquisition of a rotating pedestal to turn test articles; upgrade aircraft and test instrumentation capability; develop a Joint Precision Approach and Landing System (JPALS) test capability; and develop a common data link test capability.

E3 - The modernization of Electromagnetic Environmental Effects (E3) laboratory test equipment; and the modernization of Electromagnetic Interference (EMI) laboratory test equipment.

PSEF - The upgrade of the Helicopter Transmission Test Facility (HTTF) to support greater horsepower/torque and provide quicker setup time; and modernize and enhance the gas turbine engine rotor spin facility.

Ordnance T&E Facility - The modernization of the Warhead Insensitive Munitions, and Safety Test site; and the replacement of the Non-Destructive Test and Evaluation facility large x-ray machine.

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COST (\$ in Millions)		FY 08	FY 09	FY 10				
Project Cost		3.953	9.774					
RDT&E Articles Qty		<b>Not Applicable.</b>						
<p><b>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</b> Congressional Adds.</p> <p><b>B. Accomplishments/Planned Program:</b></p>								
<b>9A61 NETWORK EXPANSION &amp; INTEGRATION OF NAVY/NASA RDT&amp;E RANGES AND FACILITIES</b>					FY 08	FY 09	FY 10	
Accomplishments/Effort/Subtotal Cost					3.953	4.787		
RDT&E Articles Quantity					<b>Not Applicable.</b>			
<p>This is a continuing project that designs and develops (including environmental permits) fiber optic replacement of some of the existing microwave links between NASA instrumentation and the Atlantic Test Range.</p>								
<b>9E03 AIR COMBAT ENVIRONMENT TEST AND EVALUATION FACILITY UPGRADE</b>					FY 08	FY 09	FY 10	
Accomplishments/Effort/Subtotal Cost						2.992		
RDT&E Articles Quantity					<b>Not Applicable.</b>			
<p>Funds provided for the upgrade of Air Combat Environment Test and Evaluation Facility. Upgrade WKS2000 workstation at ACETEF to PC-based Linux OS and port existing software to current industry standards. Integrate waveform visualization components and audio components in to EWEnv Graphical User Interface (GUI); develop a preliminary translation capability from EWIR to the EWEnv database format; install EWEnv in the Man Flight Simulator (MFS) lab and integrate with the F-18 simulator. Develop and integrate into MFS F-18 E/F simulation High Level Architecture (HLA) compatible ALR-67(v3) model; APG-73 and APG-79 Active Electronically Scanned Array (AESA) radar model with air-to-air (A/A) and air-to-ground (A/G) modes; ASQ-228(v2) Advanced Tactical Forward Looking Infra-Red (ATFLIR) capability with tracking hardware, avionics integration and atmospheric model.</p>								
<b>9E04 IMPROVED INTEROPERABILITY RESEARCH AND DEVELOPMENT TO SUPPORT NAVAIR AND GWOT</b>					FY 08	FY 09	FY 10	
Accomplishments/Effort/Subtotal Cost						1.995		
RDT&E Articles Quantity					<b>Not Applicable.</b>			
<p>Funds provided to upgrade for the Ship Self Defense System (SSDS) and Cooperative Engagement Capability (CEC) Sensor Network at the Surface/Aviation Interoperability Laboratory (SAIL).</p>								