

# UNCLASSIFIED

CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: <b>May 2009</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RESEARCH DEVELOPMENT TEST &amp; EVALUATION, NAVY / BA-4</b>					R-1 ITEM NOMENCLATURE <b>0603860N - JPALS</b>			
COST (\$ in Millions)	FY 2008	FY 2009	FY 2010					
Total PE Cost	<b>66.789</b>	<b>76.822</b>	<b>150.304</b>					
2329 Joint Precision Approach and Landing System INC 1A	66.789	76.822	139.304					-
3228 Joint Precision Approach and Landing System INC 1B			11.000					

**A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:**

This program element provides for the development, integration, and testing of the Joint Precision Approach and Landing System (JPALS), which will be applicable to Department of Defense (DoD) Ground systems, DoD aircraft, and Navy and Coast Guard air capable surface ships. JPALS will provide a rapidly deployable, adverse weather, adverse terrain, day-night precision approach and landing capability. Operating environments include fixed or permanent ground facilities, tactical facilities, and shipboard. JPALS will be interoperable with civil landing systems. The JPALS program was established in response to the Joint Mission Need Statement (MNS) for Precision Approach and Landing Capability (PALC), which was approved by the Chief of Naval Operations on 28 July 1994 and the Chief of Staff of the Air Force on 8 August 1994. The PALC MNS was validated by the Joint Requirements Oversight Council (JROC) on 29 August 1995. Army Joint Service participation was included in the 28 May 1996 Principal Deputy Under Secretary of Defense (Acquisition and Technology) Milestone 0 Acquisition Decision Memorandum (ADM), which also designated the Air Force as the Lead Service. In March 2004, the JPALS Overarching Integrated Program Team (OIPT) determined that the MNS should be converted to an Initial Capabilities Document (ICD). The JPALS ICD was approved by the JROC on 19 September 2005. On 21 July 2007 JROCM approved the JPALS Capability Development Document (CDD) and designated the Navy as the Lead Service. The Analysis of Alternatives (AoA) was finalized in 3Q FY 2007.

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APPROPRIATION/BUDGET ACTIVITY <b>RESEARCH DEVELOPMENT TEST &amp; EVALUATION, NAVY / BA-4</b>	R-1 ITEM NOMENCLATURE <b>0603860N - JPALS</b>
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**B. PROGRAM CHANGE SUMMARY:**

Funding:	FY08	FY09	FY10
Previous President's Budget:	69.298	99.929	106.407
FY 10 President's Budget	66.789	76.822	150.304
Total Adjustments	-2.509	-23.107	43.897

Summary of Adjustments

Congressional Rescissions			
Congressional Adjustments		-22.897	
SBIR/STTR/FTT Assessments	-0.216		
Program Adjustments	-2.293		43.910
Rate/Misc Adjustments		-0.210	-0.013
Subtotal	-2.509	-23.107	43.897

Schedule:

The JPALS program Defense Acquisition Board (DAB) review did not occur as displayed in PB09. Originally scheduled for 13 February 2008, the DAB review was moved to 9 April, 2008 because of OSD (AT&L) staff scheduling conflicts. A successful DAB occurred on 27 June 2008, the Acquisition Decision Memorandum (ADM) was signed on 14 July 2008 and the SDD contract was awarded 17 July 2008. Because of the delayed DAB and contract award, several scheduled program events and milestones have now slipped by one quarter. Integration data has been added to the schedule to show Trade Studies, Design-Build-Test activities and Production Installs for the F/A-18, E/A-18G, MH-60R, MH-60S and Flight Test & CV Cert and OT&E for the JSF. JPALS INC 1B MS B moved to 1st quarter FY 2011 to coincide with JPALS INC 1A CDR.

Technical:

PE 0603860N was split into two project units; JPALS 1A and JPALS 1B, (see separate R-2A) to allow for more accurate ACAT reporting.

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APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>		PROGRAM ELEMENT NUMBER AND NAME 0603860N - Joint Precision Approach and Landing System INC 1A			PROJECT NUMBER AND NAME 2329 - JPALS INC 1A			
COST (\$ in Millions)	FY 2008	FY 2009	FY 2010					
Project Cost	<b>66.789</b>	<b>76.822</b>	<b>139.304</b>					
RDT&E Articles Qty			<b>1</b>					

**A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:**

JPALS Increment 1A provides for development, integration, installation, and test of Sea-Based JPALS to meet IOC of CVN. This effort includes the build and test of Ship Global Positioning System/Inertial Navigation System (GPS/INS) based precision approach and landing systems to replace obsolete SPN-46, SPN-35 Systems. Additionally, this requirement supports the JPALS Integration on Amphibious ships and DDG class ships (TACAN Replacement) and provides critical enabling technology for Joint Strike Fighter and Navy Unmanned Combat Air System (UCAS).

One JPALS Land and Ship based Engineering Development Model (EDM) test article will be delivered in FY 2010 to support system development and demonstration. User listed below:

FY10 - 1 unit for CTR Ship Integration Lab (SIL)

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APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603860N - Joint Precision Approach and Landing System	PROJECT NUMBER AND NAME 2329 - JPALS INC 1A
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**B. Accomplishments/Planned Program**

JPALS Technology Development	FY 08	FY 09	FY 10	
Accomplishments/Effort/Subtotal Cost	11.430			
RDT&E Articles Quantity				

Complete technology maturation and risk reduction tasks via use of Broad Area Announcements (BAA) contracts in support of Technology Development phase. Tasks include supporting documentation and presentation requirements in support of the pre-Milestone B Technology Readiness Assessment process, and pre-SDD ship and aircraft integration studies and reports. Additionally, funding supports preparing documentation to support Milestone B, developing an SDD contract solicitation package for release to industry (including the System Requirement Document), and supporting all NAVAIR pre-contract solicitation reviews and boards.

JPALS SDD Increment 1A - Shipboard	FY 08	FY 09	FY 10	
Accomplishments/Effort/Subtotal Cost	54.089	72.752	134.471	
RDT&E Articles Quantity			1	

JPALS Increment 1A provides for development, integration, installation, and test of Sea-Based JPALS to meet IOC of CVN. This effort includes the build and test of Ship Global Positioning System/Inertial Navigation System (GPS/INS) based precision approach and landing systems to replace obsolete SPN-46, SPN-35 Systems. Additionally, this requirement supports the JPALS Integration on Amphibious ships and DDG class ships (TACAN Replacement) and provides critical enabling technology for Joint Strike Fighter and Navy Unmanned Combat Air System (UCAS).

JPALS SDD Increment Aircraft Integration Guide	FY 08	FY 09	FY 10	
Accomplishments/Effort/Subtotal Cost	1.270	4.070	4.833	
RDT&E Articles Quantity				

Air Integration Guide is a principle deliverable of the JPALS SDD contract. This guide will serve as the integration document for air platforms

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**C. OTHER PROGRAM FUNDING SUMMARY:**

Line Item No. & Name

N/A

**D. ACQUISITION STRATEGY:**

Technology Development (TD) phase was conducted jointly by NAVAIRSYSCOM (PMA213), USAF Electronic Systems Command (Global Air) and multiple industry partners. This effort provided the concept of operations, performance specifications and technology readiness levels necessary to provide the foundation from which to launch the Increment 1 SDD phase development. In March 2007, overall joint program leadership transferred from the USAF to the USN. The JPALS 1A phase reached MSB on 27 June 2008 and the SDD phase development contract was awarded on 17 July 2008 and tasking consists of seabased JPALS, related ship and airborne reference systems, end-to-end software algorithms, necessary ship installation hardware, test equipment, system simulation software, and other RDT&E deliverable products to the joint team. The SDD contract was decided after full and open competition. Future procurement of airborne systems will consist of modifications to Original Equipment Manufacture (OEM) aircraft integration and to existing avionics. Seabased JPALS will be developed by the Navy with government owned or non-proprietary algorithms to an open system architecture in order to facilitate the compatible integration of many different aircraft and avionics architectures. Air Force POM 08 results deferred Air Force funding and development of land based Increment 2 to POM 10. As Lead Service, the Navy will manage the Joint Program to develop all JPALS increments. An updated JPALS Acquisition Strategy separates Increment 1 into two Increments (Inc 1A & Inc 1B). JPALS Increment 1A provides for development, integration, installation, and test of Sea-Based JPALS to meet IOC of CVN. Additionally, this requirement supports the JPALS Integration on Amphibious ships and DDG class ships and provides critical enabling technology for Joint Strike Fighter and Navy UCAS. JPALS Increment 1B provides for integration and testing into the avionics of F/A - 18E/F, EA-18G, and MH-60R. This is the first phase of the carrier airwing (CVW) integration to JPALS. This second phase of aircraft integration provides JPALS capable aircraft for CVN-79 work-ups and deployment.

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Exhibit R-3 Cost Analysis (page 1)	DATE: <b>May 2009</b>
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APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>	PROGRAM ELEMENT 0603860N - Joint Precision Approach and Landing System	PROJECT NUMBER AND NAME 2329 - JPALS INC 1A
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Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 09 Cost	FY 09 Award Date	FY 10 Cost	FY 10 Award Date			
Primary Hardware Development	C/CPAF/IF	Various	36.637	42.176	01/09	78.882	11/09			
Aircraft Integration - Non Specific	Var	Var	0.280	0.364	12/08	0.479	12/09			
Aircraft Integration - F/A-18 E/F/G	SS/CPAF	Boeing, Herndon, VA	0.440	1.513	12/08	2.323	12/09			
Aircraft Integration - MH60 R/S	SS/CPAF	Lockheed Martin, Manassas	0.860	1.009	12/08	1.549	12/09			
Aircraft Integration - Systems Eng	WX	NAWCAD Pax River	0.593	1.182	12/08	15.831	12/09			
Ship Integration	WX	NAWCAD Pax River	8.007	4.441	12/08	5.471	12/09			
Award fee	C/CPAF/IF	Various	1.638	2.934	08/09	4.584	08/10			
Primary Hardware Development-TD	Var	Var	105.504							
Subtotal Product Development			153.959	53.619		109.119				

Remarks: Conducts non-recurring engineering efforts under the SDD contract including requirements identification. Conducts System Requirements Review, System Function Review, Preliminary Design Review and Integrated Baseline Review under the SDD contract. Begins airwing integration to support CVN-21 efforts. Target Value listed for SDD contract is based on latest Program Office Estimate.

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 09 Cost	FY 09 Award Date	FY 10 Cost	FY 10 Award Date			
Development Support	VAR	VAR	21.514							
System Eng Support - SDD	VAR	VAR		7.726	12/08	7.881	12/09			
Integrated Logistics Support	WX	NAWCAD Patuxent River	4.505	1.449	12/08	1.478	12/09			
Subtotal Support			26.019	9.175		9.359				

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APPROPRIATION/BUDGET ACTIVITY			PROGRAM ELEMENT			PROJECT NUMBER AND NAME						
<b>RDT&amp;E, N / BA-4</b>			0603860N - Joint Precision Approach and Landing System			2329 - JPALS INC 1A						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 09 Cost	FY 09 Award Date	FY 10 Cost	FY 10 Award Date					
Developmental Test & Evaluation	WX	NAWCAD Patuxent River	6.496	2.876	12/08	9.451	12/09					
Operational Test & Evaluation	WX	COMOPTEVFOR NFLK, VA	0.566	0.373	12/08	0.381	12/09					
Subtotal T&E			7.062	3.249		9.832						
<p>Remarks: DT focuses on SDD phase test documentation planning and test range coordination. Develops DT test cases. Monitoring of SDD contractor system integration build up. Operational test activities include test and evaluation master plan requirements into test cases.</p>												
Government Engineering Support	WR	NAWCAD, Patuxent River	16.399	7.947	12/08	8.106	12/09					
Program Management Supp -Cost	WX	NAWCAD, Patuxent River	6.007	1.000	12/08	1.000	12/09					
PM Support MSS	CPFF	AMELEX, California, MD	3.325	1.326	12/08	1.372	12/09					
Travel	WX	NAVAIR	0.896	0.506	12/08	0.516	12/09					
Subtotal Management			26.627	10.779		10.994						
<p>Remarks: Tasking includes execution of SDD contract activities, coordination of Prime Mission Product and support contractor activities, coordination with other USN aircraft and ship program offices, development of ship installation drawings, and non-recurring engineering support.</p>												
Total Cost			213.667	76.822		139.304						
<p>Remarks:</p>												

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EXHIBIT R4, Schedule Profile													DATE: <b>May 2009</b>					
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>						PROGRAM ELEMENT NUMBER AND NAME 0603860N, JPALS						PROJECT NUMBER AND NAME 2329 - JPALS INC 1A						
Fiscal Year	2008				2009				2010									
	OND	JFM	AMJ	JAS	OND	JFM	AMJ	JAS	OND	JFM	AMJ	JAS						
	1	2	3	4	1	2	3	4	1	2	3	4						
<b>Acquisition Milestones</b>																		
<b>INC 1A</b>																		
Technology Development																		
System Development & Demo																		
Development													PDR △					
EDM Delivery													AIG △					
Integration JSF													1 △					
<b>Test &amp; Evaluation Milestones</b>																		
Integrated Test/Operational Test																		
<b>Production Milestones</b>																		

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APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>		PROGRAM ELEMENT NUMBER AND NAME 0603860N - Joint Precision Approach and Landing System			PROJECT NUMBER AND NAME 3228 - JPALS INC 1B			
COST (\$ in Millions)	FY 2008	FY 2009	FY 2010					
Project Cost			<b>11.000</b>					
RDT&E Articles Qty								

**A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:**

The JPALS Acquisition Strategy separates JPALS into two Increments sharing the same PE. JPALS Increment 1A provides for development , integration, installation, and test of Sea-Based JPALS to meet IOC of CVN. JPALS Increment 1B, beginning in FY-10, provides for integration and testing into the avionics of F/A -18E/F, EA-18G, and MH-60R. This is the first phase of the carrier air wing (CVW) integration to JPALS.

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APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603860N - Joint Precision Approach and Landing System	PROJECT NUMBER AND NAME 3228 - JPALS INC 1B
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**B. Accomplishments/Planned Program**

Fixed Wing Integration	FY 08	FY 09	FY 10	
Accomplishments/Effort/Subtotal Cost	0.000	0.000	11.000	
RDT&E Articles Quantity				

This effort includes development, integration, installation, and testing of the F/A-18E/F and EA-18G. This provides the Navy with fixed wing aircraft which are JPALS capable in FY-15 and out. This is the first phase of the carrier air wing (CVW) integration to JPALS.

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**C. OTHER PROGRAM FUNDING SUMMARY:**

Line Item No. & Name

N/A

**D. ACQUISITION STRATEGY:**

Technology Development (TD) phase was conducted jointly by NAVAIRSYSCOM (PMA213), USAF Electronic Systems Command (Global Air) and multiple industry partners. This effort provided the concept of operations, performance specifications and technology readiness levels necessary to provide the foundation from which to launch the Increment 1 SDD phase development. In March 2007, overall joint program leadership transferred from the USAF to the USN. The JPALS 1A phase reached MSB on 27 June 2008 and the SDD phase development contract was awarded on 17 July 2008 and tasking consists of seabased JPALS, related ship and airborne reference systems, end-to-end software algorithms, necessary ship installation hardware, test equipment, system simulation software, and other RDT&E deliverable products to the joint team. The SDD contact was decided after full and open competition. Future procurement of airborne systems will consist of modifications to Original Equipment Manufacture (OEM) aircraft integration and to existing avionics. Seabased JPALS will be developed by the Navy with government owned or non-proprietary algorithms to an open system architecture in order to facilitate the compatible integration of many different aircraft and avionics architectures. Air Force POM 08 results deferred Air Force funding and development of land based Increment 2 to POM 10. As Lead Service, the Navy will manage the Joint Program to develop all JPALS increments. An updated JPALS Acquisition Strategy separates Increment 1 into two Increments (In 1A & Inc 1B). JPALS Increment 1A provides for development, integration, installation, and test of Sea-Based JPALS to meet IOC of CVN. Additionally, this requirement supports the JPALS Integration on LH and DDG class ships and provides critical enabling technology for Joint Strike Fighter and Navy UCAS. JPALS Increment 1B provides for integration and testing into the avionics of F/A -18E/F, EA-18G, and MH-60R. This is the first phase of the carrier airwing (CVW) integration to JPALS. This second phase of aircraft integration provides JPALS capable aircraft for CVN-79 work-ups and deployment.

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Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 09 Cost	FY 09 Award Date	FY 10 Cost	FY 10 Award Date					
Aircraft Integration - Non Specific	Var	Var				3.889	12/09					
Aircraft Integration - F/A-18 E/F/G	SS/CPAF	Boeing, Herndon, VA				5.745	12/09					
Subtotal Product Development			0.000	0.000		9.634						
Remarks: Conducts non-recurring engineering efforts under the SDD contract including requirements identification. Conducts System Requirements Review, System Function Review, Preliminary Design Review and Integrated Baseline Review under the SDD contract. Begins airwing integration to support CVN-21 efforts.												
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 09 Cost	FY 09 Award Date	FY 10 Cost	FY 10 Award Date					
Integrated Logistics Support	WX	NAWCAD Patuxent River				0.357	12/09					
Subtotal Support			0.000	0.000		0.357						

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<b>RDT&amp;E, N / BA-4</b>			0603860N - Joint Precision Approach and Landing System			3228 - JPALS INC 1B					
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 09 Cost	FY 09 Award Date	FY 10 Cost	FY 10 Award Date				
Developmental Test & Evaluation	WX	NAWCAD Patuxent River				0.652	12/09				
Subtotal T&E			0.000	0.000		0.652					
<p>Remarks: DT focuses on SDD phase test documentation planning and test range coordination. Develops DT test cases. Monitoring of SDD contractor system integration build up.</p>											
Government Engineering Support	WR	NAWCAD, Patuxent River				0.357	12/09				
Subtotal Management			0.000	0.000		0.357					
<p>Remarks: Tasking includes execution of SDD contract activities, coordination of Prime Mission Product and support contractor activities, coordination with other USN aircraft program offices, and non-recurring engineering support.</p>											
Total Cost			0.000	0.000		11.000					
<p>Remarks:</p>											

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EXHIBIT R4, Schedule Profile													DATE: <b>May 2009</b>							
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Fiscal Year	2008				2009				2010											
	OND	JFM	AMJ	JAS	OND	JFM	AMJ	JAS	OND	JFM	AMJ	JAS								
	1	2	3	4	1	2	3	4	1	2	3	4								
<b>Acquisition Milestones Increment 1B</b>																				
Integration F/A-18, E/A-18G																				
MH-60R																				

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