

# UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Navy										Date: February 2015		
Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy I BA 4: Advanced Component Development & Prototypes (ACD&P)					R-1 Program Element (Number/Name) PE 0603860N I JT Precision Approach & Ldg Sys							
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	774.992	126.802	41.886	91.479	-	91.479	75.934	24.003	1.772	1.449	Continuing	Continuing
2329: JPALS	774.992	126.802	41.886	91.479	-	91.479	75.934	24.003	1.772	1.449	Continuing	Continuing
Program MDAP/MAIS Code: 238												
Note On 15 June 2014, USD(AT&L) signed the Nunn-McCurdy Acquisition Decision Memorandum (ADM) for the restructured Joint Precision Approach and Landing System (JPALS) Increment 1A program, which certified the program in lieu of termination. Accordingly, the JPALS Milestone B decision of July 2008 has been rescinded. JPALS has been directed to complete the development phase of the current program, which provides precision approach and landing capability for JPALS-equipped manned aircraft at sea, with the addition of risk reduction efforts to prepare for manned and unmanned auto-land capability. However, the actual production phase of JPALS Increment 1A shall be deferred to align with future acquisition of the auto-land capability. The ADM directed the Navy to: continue Increment 1A development that will culminate with completion of developmental testing activities and a Letter of Observation from the Commander, Operational Test and Evaluation Force on the JPALS Increment 1A ship system, and provide a draft Increment 1A Technical Data Package; and continue auto-land trade studies and risk reduction efforts through 3rd Quarter FY16. The ADM also directed the Navy to return to the Defense Acquisition Board (DAB) for Milestone B approval for the restructured JPALS program not later than 3rd Quarter FY16.  FY14 funding for Projects 3228 and 3354 was used to finance the single increment of JPALS. The FY14 funding was also carried over to finance some FY15 requirements on the single increment of JPALS.  A. Mission Description and Budget Item Justification A. Mission Description and Budget Item Justification The JPALS is an Acquisition Category 1D program. JPALS is the next generation GPS-based precision approach and landing system and is intended to provide an adverse weather, day/night precision approach and landing capability for manned and unmanned aircraft.  JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES because it includes all efforts necessary to evaluate integrated technologies, representative models or prototype systems in high fidelity and realistic operating environment.												

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B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	156.178	54.896	92.522	-	92.522
Current President's Budget	126.802	41.886	91.479	-	91.479
Total Adjustments	-29.376	-13.010	-1.043	-	-1.043
• Congressional General Reductions	-	-0.010			
• Congressional Directed Reductions	-	-13.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-4.376	-			
• Rate/Misc Adjustments	-	-	-1.043	-	-1.043
• Congressional Rescission Adjustments	-25.000	-	-	-	-
Change Summary Explanation					
Technical: Not applicable.					
Schedule:					
Schedule revised to reflect the ADM of 14 June 2014 (discussed above) and the impact of the 2015 reduction \$13 million) that revises MS B decision from April 2016 to June 2016. The 2014 rescission (25 million) impacted the award of a 10 month contract extension to the existing prime contractor by one quarter, 2nd to 3rd, in FY15. This extension adds the efforts necessary to conduct the Preliminary Design Review for auto-land capability in support of F-35B/C and UCLASS.					
Cost: As discussed in the schedule changes, the project was reduced by the Congress in 2015 for execution (\$13 million)and in FY 2014 (rescission action of \$25 million) for the cancellation of JPALS Inc 2.					

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Navy										Date: February 2015		
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603860N / JT Precision Approach & Ldg Sys				Project (Number/Name) 2329 / JPALS			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
2329: JPALS	774.992	126.802	41.886	91.479	-	91.479	75.934	24.003	1.772	1.449	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
Joint Precision Approach and Landing System (JPALS) provides for development, integration, installation, and test of Sea-Based JPALS on CVN/LHA/LHD-class ships in accordance with the JPALS Capability Development Document. This requirement supports the JPALS Integration on CVN/LHA/LHD-class ships and establishes requirements for enabling critical technology for Joint Strike Fighter (JSF) F-35B Marine Corps Short Take-Off and Vertical Landing and F-35C Navy Carrier Variant, and Unmanned Carrier Launched Airborne Surveillance and Strike (UCLASS). Interim JPALS capability is baselined in F-35 Block 3F software.												
JPALS Engineering Development Model (EDM) test articles have been delivered to support system development and demonstration, and JPALS ship systems will be installed on CVN/LHA/LHD-class ships in support of the F-35B/C and UCLASS shipboard testing.												
JPALS will continue to invest in software development in direct support of auto-land capabilities for the F-35B/C and UCLASS.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Title: JPALS Ship Systems and Test  Articles:  Description: JPALS provides for development, integration, installation, and test of Sea-Based JPALS on CVN/ LHA/LHD ships.  FY 2014 Accomplishments: Continued shipboard integration testing, awarded Engineering Manufacturing and Development (EMD) extension contract. Performed auto-land trade studies and risk reduction activities. Performed Initial Program Review. Begin update of acquisition and technical documentation in preparation for Milestone B in 3rd quarter FY16.  FY 2015 Plans: Continue development of JPALS system and activities related to technical maturity and auto-land risk reduction. Continue updating of acquisition and technical documentation in preparation of 3rd quarter FY16 Milestone B. Award contract modification for pre-Milestone B efforts. Continue Prototype Risk Reduction testing. Perform System Requirements Review (SRR) in 3rd quarter and Systems Functional Review (SFR) in 4th quarter.  FY 2016 Base Plans:								126.802	36.029	86.329	-	86.329
								-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Complete Integrated Logistics Assessment (ILA) in 1st quarter. Complete required update of acquisition and technical documentation to support Milestone B decision. Complete Preliminary Design Review (PDR) in 2nd quarter. Accomplish Milestone B and award new Engineering Manufacturing and Development contract in 3rd quarter. Continue Prototype Risk Reduction testing in preparation for JPALS Integrated Test (IT) in FY17. Continue auto-land risk reduction activities.  <b>FY 2016 OCO Plans:</b> N/A						
<b>Title:</b> Joint Strike Fighter (JSF) F-35B Marine Corp STOVL and F-35C Navy Carrier Variant Test Support  <b>Articles:</b>  <b>Description:</b> Provide support for F-35B Marine Corps Short Take-Off and Vertical Landing (STOVL) aircraft and F-35C Navy Carrier Variant Developmental Test (DT) and Operational Tests (OT).  <b>FY 2014 Accomplishments:</b> N/A  <b>FY 2015 Plans:</b> Install Engineering Development Model (EDM) on a CVN in 2nd quarter in support of F-35C Navy Carrier Variant DT-2. Provide support for F-35B Marine Corps STOVL DT-3 on an LHA in 3rd quarter.  <b>FY 2016 Base Plans:</b> Provide support for F35-B Marine Corps STOVL variant DT-3 on an LHA. Install EDM on a CVN in 4th quarter in support of F-35C Navy Carrier Variant DT-3.  <b>FY 2016 OCO Plans:</b> N/A		- -	4.157 -	3.750 -	- -	3.750 -
<b>Title:</b> Unmanned Carrier-Launched Airborne Surveillance and Strike (UCLASS) Test Support  <b>Articles:</b>  <b>Description:</b> Provide Developmental Test (DT) and Operational Test (OT) support for UCLASS.  <b>FY 2014 Accomplishments:</b> N/A  <b>FY 2015 Plans:</b>		- -	1.700 -	1.400 -	- -	1.400 -

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2016 Navy				<b>Date:</b> February 2015	
<b>Appropriation/Budget Activity</b> 1319 / 4		<b>R-1 Program Element (Number/Name)</b> PE 0603860N / JT Precision Approach & Ldg Sys		<b>Project (Number/Name)</b> 2329 / JPALS	

  

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016 Base</b>	<b>FY 2016 OCO</b>	<b>FY 2016 Total</b>
Provide test planning and other support as required for Unmanned Carrier-Launched Airborne Surveillance and Strike (UCLASS) Developmental Test (DT).  <b>FY 2016 Base Plans:</b> Continue development of test documentation and planning in support of UCLASS DT.  <b>FY 2016 OCO Plans:</b> N/A					
<b>Accomplishments/Planned Programs Subtotals</b>	126.802	41.886	91.479	-	91.479

  

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016 Base</u>	<u>FY 2016 OCO</u>	<u>FY 2016 Total</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPN/2867: JPALS	-	-	-	-	-	-	-	58.202	68.534	-	126.736
<b>Remarks</b>											
<b>D. Acquisition Strategy</b> Technology Development 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 System Development and Demonstration (SDD) phase development. Joint Precision Approach and Landing System (JPALS) reached MS-B on 14 July 2008 and the SDD phase development contract was awarded on 17 July 2008. Tasking consists of sea-based 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. The SDD contract was decided after full and open competition. JPALS is being developed by the Navy with an open system architecture in order to facilitate the compatible integration of many different aircraft and avionics architectures. JPALS provides for development, integration, installation, and test of Sea-Based JPALS to meet Initial Operation Capability of CVN/LHA/LHD-class ships in accordance with the JPALS Capability Development Document (CDD). Additionally, this requirement provides critical enabling technology for Joint Strike Fighter (JSF) F-35B Marine Corps Short Take-Off and Vertical Landing (STOVL) and F-35C Navy Carrier Variant, and ship-based Unmanned Carrier Launched Airborne Surveillance and Strike (UCLASS).  As a result of the DON Resource and Requirements Review Board approved PALC Roadmap, the JPALS development program was extended to include design improvements to provide manned and unmanned aircraft with autoland capabilities. The current Engineering and Manufacturing Development (EMD) contract was modified in FY14 to add detailed requirements and design trade studies to identify specific system design improvements. An extension for pre-Milestone B efforts will be awarded in 3rd quarter of FY15. After Milestone B approval in FY16, an EMD implementation contract will be awarded for the required autoland system improvements											

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<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603860N / <i>JT Precision Approach &amp; Ldg Sys</i>	<b>Project (Number/Name)</b> 2329 / <i>JPALS</i>

and support JSF F-35B Marine Corps STOVL and F-35C Navy Carrier Variant and UCLASS shipboard testing prior to conducting a MS-C Low Rate Initial Production (LRIP) review and awarding an LRIP contract.

## E. Performance Metrics

Original Milestone B (June 2008) was rescinded by USD(ATL)-issued Acquisition Decision Memorandum, dtd 15 June 2014. New Milestone B is scheduled for 3rd quarter FY16.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Navy												Date: February 2015			
Appropriation/Budget Activity 1319 / 4						R-1 Program Element (Number/Name) PE 0603860N / JT Precision Approach & Ldg Sys				Project (Number/Name) 2329 / JPALS					
Product Development (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Ship Integration	WR	NAWCAD : Pax River, MD	24.482	10.609	Dec 2013	1.724	Dec 2014	12.650	Dec 2015	-		12.650	Continuing	Continuing	Continuing
Primary Hardware Development - EMD Phase I	C/CPAF	Raytheon : Fullerton, CA	296.794	58.424	Jan 2014	19.081	May 2015	19.020	Nov 2015	-		19.020	-	393.319	393.319
Primary Hardware Development - New EMD Contract	TBD	Raytheon : Fullerton, CA	0.000	-		-		11.365	Jun 2016	-		11.365	-	11.365	Continuing
Risk Reduction for Auto-land	Various	Various : Various	0.000	13.653	Dec 2013	-		-		-		-	-	13.653	-
Risk Reduction for Auto-land - ARC-210	C/CPFF	RCI : Cedar Rapids, IA	0.000	1.549	Dec 2013	1.480	Dec 2014	1.700	Dec 2015	-		1.700	-	4.729	4.729
Risk Reduction for Auto-land - FFRDC Support	FFRDC	JHU : Laurel, MD	0.000	0.493	Dec 2013	-		1.500	Oct 2015	-		1.500	-	1.993	-
Award Fee	C/CPAF	Various : Various	12.068	-		-		-		-		-	-	12.068	12.068
Prior Year Prod Dev costs no longer funded in FYDP	Various	Various : Various	130.650	-		-		-		-		-	-	130.650	-
Prior year funding for JPALS 1B	TBD	Various : Various	93.499	-		-		-		-		-	-	93.499	-
Subtotal			557.493	84.728		22.285		46.235		-		46.235	-	-	-
Remarks															
The Primary Hardware Development contract with Raytheon is a combined CPAF and CPIF contract. New EMD contract award is projected for third quarter 2016.															
Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering Support	WR	NAWCAD : Pax River, MD	110.768	24.730	Dec 2013	8.190	Dec 2014	26.167	Dec 2015	-		26.167	Continuing	Continuing	Continuing

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Support (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	WR	NAWCAD : Pax River, MD	18.373	3.190	Dec 2013	1.229	Dec 2014	2.220	Dec 2015	-		2.220	Continuing	Continuing	Continuing
Prior Year Support Costs non longer funded in FYDP	Various	Various : Various	21.514	-		-		-		-		-	-	21.514	-
Subtotal			150.655	27.920		9.419		28.387		-		28.387	-	-	-
Test and Evaluation (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD : Pax River, MD	41.354	6.662	Dec 2013	6.234	Dec 2014	9.853	Dec 2015	-		9.853	Continuing	Continuing	Continuing
Operational Test & Evaluation	WR	COMOPTEVFOR : Norfolk, VA	2.609	0.638	Dec 2013	0.250	Dec 2014	0.650	Dec 2015	-		0.650	Continuing	Continuing	Continuing
Subtotal			43.963	7.300		6.484		10.503		-		10.503	-	-	-
Management Services (\$ in Millions)				FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD : Pax River, MD	12.510	3.428	Dec 2013	0.978	Dec 2014	3.584	Dec 2015	-		3.584	Continuing	Continuing	Continuing
PM Support-MSS	C/CPFF	TBD : TBD	10.315	1.203	Dec 2013	1.172	Dec 2014	1.200	Dec 2015	-		1.200	-	13.890	13.890
PM Support-MSS	C/CPFF	Avian : Pax River, MD	0.000	1.140	Dec 2013	0.452	Dec 2014	0.450	Dec 2015	-		0.450	-	2.042	2.042
PM Support-MSS	C/CPFF	SAIC : Pax River, MD	0.000	1.027	Dec 2013	1.026	Dec 2014	1.050	Dec 2015	-		1.050	-	3.103	3.103
Travel	WR	NAVAIR : Pax River, MD	0.056	0.056	Dec 2013	0.070	Dec 2014	0.070	Dec 2015	-		0.070	Continuing	Continuing	Continuing
Subtotal			22.881	6.854		3.698		6.354		-		6.354	-	-	-



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			Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			774.992	126.802		41.886		91.479		-		91.479	-	-	-

Remarks

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PE 0603860N: *JT Precision Approach & Ldg Sys*  
Navy

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Project (Number/Name)	Start Date	End Date	Duration (Days)	Progress (%)	Status	Notes
101	2023-01-01	2023-01-15	14	100	Completed	Project 101 completed on time.
102	2023-01-15	2023-02-01	16	75	In Progress	Project 102 is 75% complete.
103	2023-02-01	2023-02-15	14	50	In Progress	Project 103 is 50% complete.
104	2023-02-15	2023-03-01	15	25	In Progress	Project 104 is 25% complete.
105	2023-03-01	2023-03-15	14	10	In Progress	Project 105 is 10% complete.
106	2023-03-15	2023-03-31	15	0	Not Started	Project 106 has not started yet.
107	2023-03-31	2023-04-15	15	0	Not Started	Project 107 has not started yet.
108	2023-04-15	2023-04-30	15	0	Not Started	Project 108 has not started yet.
109	2023-04-30	2023-05-15	15	0	Not Started	Project 109 has not started yet.
110	2023-05-15	2023-05-31	15	0	Not Started	Project 110 has not started yet.

PE 0603860N / JT Precision Approach &amp; Ldg Sys

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2016 Navy			<b>Date:</b> February 2015
<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603860N / <i>JT Precision Approach &amp; Ldg Sys</i>	<b>Project (Number/Name)</b> 2329 / <i>JPALS</i>	

**Schedule Details**

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>JPALS INC 1A</b>				
Acquisition Milestones: MS B	3	2016	3	2016
Acquisition Milestones: MS C	3	2019	3	2019
Acquisition Milestones: Nunn_McCurdy Decertification	3	2014	3	2014
Acquisition Milestones: Initial Program Review (IPR)	4	2014	4	2014
Systems Development: Engineering and Manufacturing Development	1	2014	3	2019
Systems Development: Tech Maturity and Risk Reduction in support of Autoland	3	2014	1	2016
Systems Development: New Engineering & Manufacturing Development Implementation	3	2016	1	2019
Systems Development: Reviews: Critical Design Review (CDR)	2	2017	2	2017
Systems Development: Reviews: System Readiness Review (SRR)	3	2015	3	2015
Systems Development: Reviews: Preliminary Design Review (PDR)	2	2016	2	2016
Systems Development: Reviews: Systems Functional Review (SFR)	4	2015	4	2015
Systems Development: Reviews: Integrated Logistics Assessment (ILA)	1	2016	1	2016
Systems Development: Reviews: New EMD Integrated Logistics Assessment (ILA)	1	2019	1	2019
Systems Development: Contract Awards: LRIP Contract Award	3	2019	3	2019
Systems Development: Contract Awards: EMD Extension Contract Award	2	2014	2	2014
Systems Development: Contract Awards: EMD Extension adding pre- MS B efforts	3	2015	3	2015
Systems Development: Contract Awards: New Contract Award	3	2016	3	2016
Test & Evaluation: JSF Ship Integration / Flight Test F35/JSF	1	2016	4	2016
Test & Evaluation: F35C DT-2	4	2015	4	2015
Test & Evaluation: Prototype Risk Reduction Test	3	2014	2	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Navy			Date: February 2015		
Appropriation/Budget Activity 1319 / 4		R-1 Program Element (Number/Name) PE 0603860N / JT Precision Approach & Ldg Sys		Project (Number/Name) 2329 / JPALS	
		Start		End	
Events by Sub Project		Quarter	Year	Quarter	Year
Test & Evaluation: JPALS Integration Test (IT)		3	2017	4	2020
Test & Evaluation: Pre-Integration and Operational Test and Evaluation (IOT&E)		3	2019	3	2020
Test & Evaluation: Operational Test and Evaluation (IOT&E)		4	2020	4	2020
Test & Evaluation: F35B DT-3 Test Support		1	2016	4	2016
Test & Evaluation: F35C DT-3 Test Support		1	2017	2	2017
Test & Evaluation: F35C OT-1 Test Support		2	2017	1	2019
Test & Evaluation: UCLASS Developmental Test Support		1	2019	4	2020
Test & Evaluation: JPALS Operational Test Readiness Review (OTRR)		3	2020	3	2020
Production Milestones: Production Readiness Review (PRR)		1	2019	1	2019
Deliveries: Inital LRIP Deliveries		4	2020	4	2020