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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0204136N / <i>F/A-18 Squadrons</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	4,823.378	84.976	135.755	189.125	-	189.125	165.548	142.499	112.815	115.594	Continuing	Continuing
1662: <i>F/A-18 Improvement</i>	4,114.429	72.075	109.233	67.886	-	67.886	72.171	61.150	50.069	51.766	Continuing	Continuing
2065: <i>F/A-18 Radar Upgrade</i>	708.949	3.033	15.022	13.926	-	13.926	9.197	7.117	8.911	8.916	Continuing	Continuing
2069: <i>F/A-18 Infrared Search and Track (IRST)</i>	0.000	0.000	0.000	107.313	-	107.313	84.180	74.232	53.835	54.912	Continuing	Continuing
9999: <i>Congressional Adds</i>	0.000	9.868	11.500	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	21.368

A. Mission Description and Budget Item Justification

Decrease in F/A-18 SQUADRONS by \$8.098M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

The F/A-18 is required to perform multiple missions. Capabilities of the F/A-18 weapon system and ancillary equipment can be upgraded to accommodate and incorporate new or enhanced weapons as well as advances in technology to respond effectively to emerging future threats. Continued F/A-18 E/F and EA-18G "Flight Plan" spiral capability development is critical to the baseline of the Super Hornet next generation mission system capability and maintaining tactical relevance in support of Navy Aviation Plan 2030. Development continues for a platform solution to threat Advanced Electronic Attack and Counter-Electronic Attack (CEA). F/A-18 solutions to CEA include upgrades to existing sensors such as F/A-18 Radar Upgrade, Infrared Search and Track Block I/II, and development of a fused picture between these sensors. Additionally, continued advanced development engineering for improvements in reliability and maintainability are required to ensure maximum benefit is achieved through reduced cost of ownership and to provide enhanced availability.

Infrared Search and Track (IRST) is not a new start program. Work was previously completed under project unit 1662 and has been moved to project unit 2069 in FY17.

Congressional adds are for support of Dual Mode Brimstone and an engine noise reduction study.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate funding in the current or subsequent fiscal year.

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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	86.216	133.265	233.175	-	233.175
Current President's Budget	84.976	135.755	189.125	-	189.125
Total Adjustments	-1.240	2.490	-44.050	-	-44.050
• Congressional General Reductions	-	-0.010			
• Congressional Directed Reductions	-	-9.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	11.500			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.240	0.000			
• Program Adjustments	0.000	0.000	-1.838	-	-1.838
• Rate/Misc Adjustments	0.000	0.000	-42.212	-	-42.212

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 9999: *Congressional Adds*

 Congressional Add: *Dual Mode Brimstone Integration*

 Congressional Add: *Noise Reduction*

Congressional Add Subtotals for Project: 9999

Congressional Add Totals for all Projects

	FY 2015	FY 2016
	9.868	10.000
	0.000	1.500
Congressional Add Subtotals for Project: 9999	9.868	11.500
Congressional Add Totals for all Projects	9.868	11.500

Change Summary Explanation

Technical:

1662: Not Applicable

2065: Not Applicable

Schedule:

1662: Not Applicable

2065: Not Applicable

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Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0204136N / F/A-18 Squadrons				Project (Number/Name) 1662 / F/A-18 Improvement			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
1662: F/A-18 Improvement	4,114.429	72.075	109.233	67.886	-	67.886	72.171	61.150	50.069	51.766	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The F/A-18 is a multi-mission strike fighter aircraft that is used in Air-to-Air, strike, surveillance, reconnaissance and tanking roles through selected use of external equipment (fuel tanks, tactical and reconnaissance pods, and various ordnance launching racks). Additional capabilities are required for interoperability in a network-centric tactical environment. In order to respond effectively to emerging future threats, F/A-18 aircraft capabilities are being expanded and upgraded to incorporate new/enhanced weapons systems and avionics including Dual Mode Weapons, Counter-Electronic Attack (CEA), Infra-red Search and Track (IRST) integrated with the Active Electronically Scanned Array (AESA) Radar to provide Narrow Band High Gain Electronic Attack and Multi-System Integration. Continued advanced development engineering and analysis of hardware/software is required to successfully optimize fleet F/A-18 weapon systems for interoperability in a network centric tactical environment (such as Naval Integrated Fire Control-Counter Air), to include: enhanced software capabilities, potential new hardware development, enhanced existing hardware, and enhanced network centric capabilities. Additionally, continued effort is needed to perform technical evaluations, modeling and simulations, investigative flight testing, enhanced software modifications based on reported fleet deficiencies and the development and testing of design modifications to address obsolescence issues with the F/A-18 weapon system and ancillary equipment. This funding line continues F/A-18E/F "Flight Plan" spiral capability development, to include Multi-System Integration and further Flight Plan Engineering and System Configuration Set development and integration. This budget continues funding for F/A-18A-F Test Wing Maintenance support and funds development efforts needed for integration of air launched laser guided rockets on F/A-18 A+/C/D.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Electro-Optical Infra-Red Search and Track (IRST)	40.157	43.365	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: Technology development and engineering and manufacturing development of an IRST sensor for the F/A-18 E/F. Block I supports technology development and engineering and manufacturing development of an IRST sensor for the F/A-18E/F to provide an alternate fire control system in a high Electronic Attack / Radio Detection and Ranging (RADAR) denied environment. Block II IRST modifies the Infra-Red Receiver and processor to provide full Capabilities Development Document capability and enhanced warfighting capability through an improved engagement timeline, improved situational awareness, longer range passive detection and tracking and a larger field of regard with specification performance.					
FY 2015 Accomplishments:					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Completed Engineering and Development Phase (hardware and software) to include Engineering Development Model conversion. Conducted Integrated Baseline Review 2 and Operational Testing Readiness Review. Completed Integration Testing and start production on LRIP-1 (APN funded). Completed Milestone C Review.</p> <p>FY 2016 Plans: Begin additional development efforts for fleet required Long Wave Infrared Search and Track (LWIRST). Conduct Integrated Baseline Review 2 and Operational Test Readiness Review. Complete Integration Testing and start production on LRIP-2 (APN funded).</p> <p>FY 2017 Base Plans: IRST project is moved to Project Unit 2069 F/A-18 Infrared Search and Track (IRST).</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Multi-System Integration</p> <p align="right">Articles:</p> <p>Description: Multi-System Integration migrates from the previous Multi-Sensor Integration Phased approach and allows for insertion of new technologies and requirements to keep pace with rapidly evolving warfighter demands. Also, includes a naming convention change in regards to System Configuration Set (SCS) builds 27, 29 & 31. Initially all "X" labeled builds to include Block I Super Hornets, now 27, 29, & 31 will no longer include Super Hornets thus going back to a "C" SCS label designation to include only legacy A-D aircraft.</p> <p>FY 2015 Accomplishments: Multi-System Integration will continue efforts begun with Multi-Sensor Integration Phase III including system software design and development. Primary efforts will be software driven through the development, integration and testing of System Configuration Sets H12 and H14. Decision Superiority gaps in Air Warfare will be addressed through the ongoing integration of weapons and sensors combined with display improvements to enhance air-to-surface, air-to-air and Counter Electronic Attack sensor integration. Upgrades to display firmware, display symbology, Crew Vehicle Interface improvements and air-to-air Mission Tactical Picture improvements. Development and Integration of Precision Approach Landing Capability with Civilian Interoperability functionality implemented through a combined hardware and software solution utilizing a Civilian Instrument Landing System and Space Based Augmentation System including a Multi-Mode Receiver and Space Based Augmentation System enabled GPS receiver. Continued updates to Wingman Compatability</p>	14.486	32.131	35.124	0.000	35.124
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>improvements such as Unique Identification and Enhanced Interference Blanking Unit and continued updates to Integrated Defensive Counter Measures suite of electronic warfare hardware.</p> <p>FY 2016 Plans: Multi-System Integration will continue efforts begun with Multi-Sensor Integration Phase III including system software design and development. Primary efforts will be software driven through the development, integration and testing of System Configuration Sets H12, H14 and H16. Decision Superiority gaps in Air Warfare will be addressed through the ongoing integration of weapons and sensors combined with display improvements to enhance air-to-surface, air-to-air and Counter Electronic Attack sensor integration. Upgrades to display firmware, display symbology, Crew Vehicle Interface improvements and air-to-air Mission Tactical Picture improvements. Development and Integration of Precision Approach Landing Capability with Civilian Interoperability functionality implemented through a combined hardware and software solution utilizing a Civilian Instrument Landing System and Space Based Augmentation System including a Multi-Mode Receiver and Space Based Augmentation System enabled GPS receiver. Continued updates to Wingman Compatability improvements such as Unique Identification and Enhanced Interference Blanking Unit and continued updates to Integrated Defensive Counter Measures suite of electronic warfare hardware.</p> <p>FY 2017 Base Plans: Flight Plan Multi-System Integration (MSI) of capabilities continue through System Configuration Set (SCS) mission computer, Joint Mission Planning System Unique Planning Component, and weapon system software updates associated with each incremental Block (H build) software update. Decision Superiority gaps in Air and Surface Warfare will continue with ongoing integration of weapons and sensors combined with Display Improvements to enhance air-to-surface, air-to-air and Counter Electronic Attack sensor integration. Increase to engineering efforts for integration of active and passive kill chain capabilities and sensors associated with flight plan Naval Integrated Fires Control, for Over the Horizon Anti-Surface Warfare and Strike Accelerator target identification transition efforts. MSI algorithm and sensor developmental efforts also increase at test activities for ongoing modeling and simulation upgrades such as Net Enabled Weapon Controller Interface Model interoperability software and equipment, and Live Virtual Construct interoperability efforts.</p> <p>FY 2017 OCO Plans: N/A</p>					

Title: Flight Plan Engineering / System Configuration Set Development and Integration	10.409	28.191	26.956	0.000	26.956
Articles:	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Description: Continue F/A-18 E/F and EA-18G "Flight Plan" spiral capability development is critical to the baseline of the Super Hornet next generation mission system capability. Funding will support the development, test and integration efforts required to maintain tactical relevance in support of Navy Aviation Plan 2030.</p> <p>FY 2015 Accomplishments: Continued Flight Plan Engineering efforts to include F/A-18E/F improvements necessary for Super Hornet relevance and tactical supremacy; Navy Integrated Fire Control-Counter Air system configuration set requirements to support Navy Integrated Air and Missile Defense capability requirements and enhance F/A-18 Cooperative Engagement Capability. Funding supports development (hardware and software), test and integration efforts for Flight Plan requirements such as Distributed Targeting Processor-Networked to include Aided Target Recognition, Stationary Target Recognition, Maritime Multiple Target Track and Engagement, Multi-Level Security, Strike Accelerator and Advanced Tactical Data Link; Display Improvements for enhanced sensor integration; Tactical Targeting Network Technology internet protocol capability; and Precision Approach and Landing Capability.</p> <p>FY 2016 Plans: Continue Flight Plan Engineering efforts to include F/A-18E/F improvements necessary for Super Hornet relevance and tactical supremacy; Navy Integrated Fire Control-Counter Air system configuration set requirements to support Navy Integrated Air and Missile Defense capability requirements and enhance F/A-18 Cooperative Engagement Capability. Funding supports development (hardware and software), test and integration efforts for Flight Plan requirements such as Distributed Targeting Processor-Networked to include Aided Target Recognition, Stationary Target Recognition, Maritime Multiple Target Track and Engagement, Multi-Level Security, Strike Accelerator and Advanced Tactical Data Link; Display Improvements for enhanced sensor integration; Tactical Targeting Network Technology internet protocol capability; Flight Path Control (Magic Carpet); and Precision Approach and Landing Capability, in support of Integrated Capability Package 2 and 3.</p> <p>FY 2017 Base Plans: Continue Flight Plan Engineering efforts to include F/A-18E/F improvements necessary for Super Hornet relevance and tactical supremacy, Navy Integrated Fire Control-Counter Air system configuration set requirements to support Navy Integrated Air and Missile Defense capability requirements and enhance F/A-18 Cooperative Engagement Capability. Funding supports (hardware and software), test and integration efforts for Flight Plan requirements such as Stationary Target Recognition, Maritime Multiple Target Track and Engagement, Multi-Level Security, Strike Accelerator and Advanced Tactical Data Link; Display Improvements for enhanced sensor integration; Tactical Targeting Network Technology internet protocol capability; Flight Path</p>					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
		FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Control (Magic Carpet); and Precision Approach and Landing Capability, in support of Integrated Capability Package 2 and 3.						
FY 2017 OCO Plans: N/A						
Title: Test Wing Maintenance Conversion		6.923	4.846	4.806	0.000	4.806
		Articles:	-	-	-	-
Description: Funding supports maintenance of aircraft at NAVAIR Test Wing used to support Program Office objectives.						
FY 2015 Accomplishments: Performed aircraft maintenance on Test Wing aircraft. FY15 restores Test Wing funding to previously planned levels.						
FY 2016 Plans: Perform aircraft maintenance on Test Wing aircraft.						
FY 2017 Base Plans: Perform aircraft maintenance on Test Wing aircraft.						
FY 2017 OCO Plans: N/A						
Title: F/A-18 Obsolescence Redesign		0.100	0.700	1.000	0.000	1.000
		Articles:	-	-	-	-
Description: Develop and test modifications to address obsolescence issues.						
FY 2015 Accomplishments: Developed and tested design modifications to hardware components and software systems in response to F/A-18 weapon system and ancillary equipment obsolescence issues.						
FY 2016 Plans: Develop and test design modifications to hardware components and software systems in response to F/A-18 weapon system and ancillary equipment obsolescence issues.						
FY 2017 Base Plans:						

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Develop and test design modifications to hardware components and software systems in response to F/A-18 weapon system and ancillary equipment obsolescence issues.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	72.075	109.233	67.886	0.000	67.886

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APN/0143: EA-18G	1,503.534	858.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	12,905.711
• APN/05250: F-18 SERIES MOD	704.324	920.351	1,023.492	-	1,023.492	1,247.611	1,387.255	1,565.656	1,522.806	7,441.836	22,713.484
• RDTEN/3063: EA-18G DEVELOPMENT	18.653	46.921	116.761	-	116.761	164.999	142.820	65.642	67.405	Continuing	Continuing
• APN/0145: FA-18E/F	0.000	350.000	0.000	184.912	184.912	1,309.000	0.000	0.000	0.000	0.000	45,380.856

Remarks

D. Acquisition Strategy

The F/A-18 Improvement program consists of extensive spiral development efforts mapped out in the capability-based approach F/A-18 E/F "Flight Plan." These efforts are critical to the baseline of the Super Hornet next generation mission system capability and maintaining tactical relevance in support of Navy Aviation Plan 2030.

The major programs within the F/A-18 Improvement project are based on six Weapon System Capabilities: Net Centric Operations/Battle Space Management, Sensor Integration, Air to Ground and Maritime Attack, and Air to Air Attack. The major efforts included in this project are: Dual Mode Weapons integration; an Infra-Red Search and Track Multi-System Integration; continued advanced development and F/A-18E/F Flight Plan engineering and analysis; continued enhanced software capabilities development; and engineering support to perform technical evaluations, modeling and simulations, and investigative flight testing.

- Infra-Red Search and Track (IRST). The IRST Block I/II program is a Navy program in the Engineering Manufacturing and Development (EMD) phase. A Block I system will be developed by the Navy that will meet requirements for a Counter-Electronic Attack capability. This capability will reach Initial Operational Capability (IOC) in FY 2018.

- Multi-System Integration. Multi-System Integration development is provided on a sole source cost plus fixed fee contract on a Research and Development Basic Ordering Agreement to Boeing.

E. Performance Metrics

IRST Program achieved MS B on 17 June 2011, achieved MS C on 02 December 2014, and scheduled for IOC in 3rd Quarter of FY2018.

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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
IRST - Primary Hardware Development Infra-Red Search and Track (IRST)	C/CPIF	Boeing : St. Louis, MO	154.712	9.479	Nov 2014	24.748	Feb 2016	0.000		-		0.000	0.000	188.939	188.939
Multi System Integration - Develop Sensor Integration	C/IDIQ	Various : Various	0.000	0.000		1.500	Feb 2016	12.500	Feb 2017	-		12.500	Continuing	Continuing	Continuing
Multi-System Integration Development Support	WR	NAWCWD : China Lake, CA	0.000	0.000		0.000		13.500	Dec 2016	-		13.500	0.000	13.500	-
Multi-System Integration Development Support	WR	NAWCAD : Pax River, MD	0.000	0.000		0.000		5.000	Dec 2016	-		5.000	0.000	5.000	-
Flight Plan / PALC(WAAS)	C/CPFF	Boeing : St. Louis, MO	0.000	0.000		3.650	Jul 2016	3.664	Jul 2017	-		3.664	0.000	7.314	7.314
Flight Plan/SCS Development(Magic Carpet)	C/CPIF	GE : Various	0.000	0.000		5.000	Mar 2016	0.000		-		0.000	0.000	5.000	5.000
Flight Plan/SCS Development	WR	NAWCAD : Pax River, MD	0.000	4.331	Nov 2014	1.820	Jan 2016	5.496	Dec 2016	-		5.496	0.000	11.647	-
Flight Plan/SCS Development (Magic Carpet)	C/CPIF	Boeing : St. Louis, MO	0.000	0.000		9.761	Jan 2016	11.454	Dec 2016	-		11.454	0.000	21.215	21.215
Prior Year Prod Dev cost no longer funded in FYDP	Various	Various : Various	580.487	0.000		0.000		0.000		-		0.000	0.000	580.487	-
Subtotal			735.199	13.810		46.479		51.614		-		51.614	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
IRST - Software (S/W) Development	WR	NAWCWD : China Lake, CA	2.464	7.854	Dec 2014	1.370	Dec 2015	0.000		-		0.000	0.000	11.688	-
IRST - Development Support	WR	NAWCWD : China Lake, CA	6.522	0.372	Dec 2014	0.332	Dec 2015	0.000		-		0.000	0.000	7.226	-

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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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
IRST - Development Support	WR	NAWCAD : Pax River, MD	13.069	2.798	Dec 2014	2.100	Dec 2015	0.000		-		0.000	0.000	17.967	-
IRST - Development Support	WR	NAWCAD : Lakehurst, NJ	2.163	0.844	Dec 2014	0.707	Dec 2015	0.000		-		0.000	0.000	3.714	-
IRST - Development Support	WR	FRC Southeast : Jacksonville, FL	4.823	1.038	Dec 2014	0.503	Dec 2015	0.000		-		0.000	0.000	6.364	-
Multi-System Integration Development Support	WR	NAWCAD : Pax River, MD	0.000	3.250	Dec 2014	2.113	Dec 2015	0.000		-		0.000	0.000	5.363	-
Multi-System Integration Development Support	WR	NAWCWD : China Lake, CA	0.000	3.775	Dec 2014	14.733	Jan 2016	0.000		-		0.000	0.000	18.508	-
Multi-System Integration Development Support	SS/IDIQ	Boeing : St. Louis, MO	0.000	4.500	Dec 2014	8.620	Dec 2015	0.000		-		0.000	0.000	13.120	13.120
Multi-System Integration Development Support	WR	NSMA : Arlington, VA	0.000	2.300	Mar 2015	2.300	Mar 2016	2.300	Mar 2017	-		2.300	Continuing	Continuing	Continuing
Flight Plan/System Configuration Set Development & Integration	WR	NAWCAD : Pax River, MD	2.165	0.000		0.898	Nov 2015	2.714	Nov 2016	-		2.714	Continuing	Continuing	Continuing
Obsolescence Redesign	Various	Various : Various	0.100	0.100	Jun 2015	0.700	Jun 2016	1.000	Jun 2017	-		1.000	Continuing	Continuing	Continuing
Prior Year Support costs no longer funded in FYDP	Various	Various : Various	3,022.595	0.000		0.000		0.000		-		0.000	0.000	3,022.595	-
Subtotal			3,053.901	26.831		34.376		6.014		-		6.014	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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
IRST - Developmental Test & Evaluation (DT&E)	WR	NAWCAD : Pax River, MD	15.543	1.090	Dec 2014	1.100	Dec 2015	0.000		-		0.000	Continuing	Continuing	Continuing
IRST - DT&E	WR	NAWCWD : China Lake, CA	13.238	6.262	Dec 2014	3.500	Dec 2015	0.000		-		0.000	Continuing	Continuing	Continuing
IRST - Operational Test & Evaluation (OT&E)	WR	OPTEVFOR : VX-9	1.000	6.406	Dec 2014	4.940	Dec 2015	0.000		-		0.000	Continuing	Continuing	Continuing

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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Multi-System Integration	WR	OPTEVFOR : Norfolk, VA	0.000	0.661	Dec 2014	0.800	Dec 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Flight Plan/SCS Test & Evaluation	WR	NAWCAD : Pax River, MD	0.000	0.000		1.000	Nov 2015	1.000	Dec 2016	-		1.000	0.000	2.000	-
AIM-120 Test Assets	MIPR	USAF : Eglin AFB, FL	2.000	0.000		2.000	Dec 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Prior Year T&E costs no longer funded in FYDP	Various	Various : Various	135.335	0.000		0.000		0.000		-		0.000	0.000	135.335	-
Subtotal			167.116	14.419		13.340		1.000		-		1.000	-	-	-

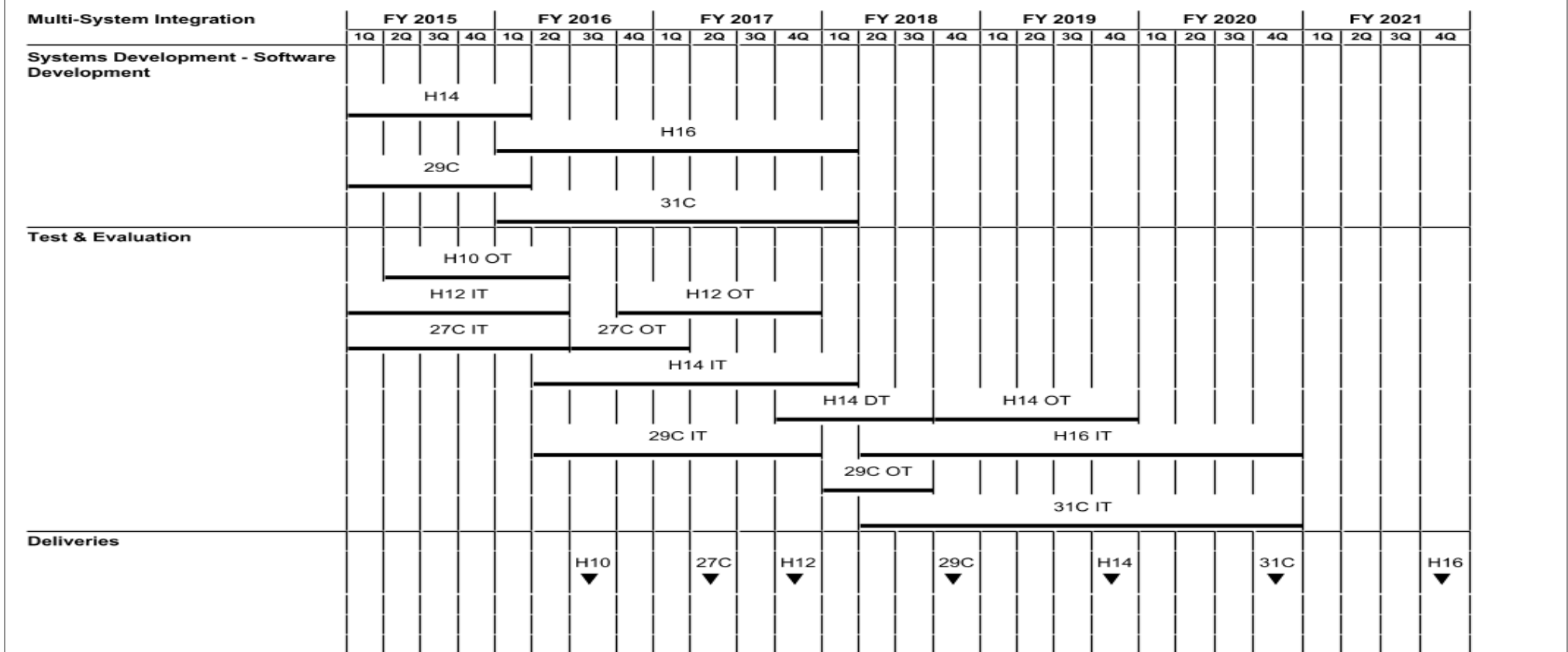
Remarks
 Test Assets (AIM-120) procured as live fire test assets in support of F/A-18E/F Improvements programs (IRST, MSI (SCS block builds)) and weapons integration efforts specific to the F/A-18.

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Mgmt Support - MISC	Various	NAWCAD : Pax River, MD	12.105	2.100	Dec 2014	2.100	Dec 2015	0.659	Dec 2016	-		0.659	Continuing	Continuing	Continuing
Seaport CSS - Program Management Support	C/CPFF	Wyle Lab : Pax River, MD	17.882	3.442	Dec 2014	3.442	Mar 2016	2.626	Dec 2016	-		2.626	0.000	27.392	27.392
Travel	Various	NAVAIR : Pax River, MD	4.923	0.250	Nov 2014	0.250	Nov 2015	0.250	Nov 2016	-		0.250	Continuing	Continuing	Continuing
Test Wing Maintenance Conversion	WR	NAWCAD : Pax River, MD	26.695	3.462	Dec 2014	2.423	Dec 2015	2.403	Dec 2016	-		2.403	Continuing	Continuing	Continuing
Test Wing Maintenance Conversion	WR	NAWCWD : China Lake, CA	27.622	3.461	Dec 2014	2.423	Dec 2015	2.403	Dec 2016	-		2.403	Continuing	Continuing	Continuing
Flight Plan / System Configuration Set Development & Integration	WR	NAWCAD : Pax River, MD	2.000	2.150	Dec 2014	2.200	Dec 2015	0.459	Dec 2016	-		0.459	Continuing	Continuing	Continuing
Flight Plan / System Configuration Set Development & Integration	WR	NAWCWD : China Lake, CA	2.000	2.150	Dec 2014	2.200	Dec 2015	0.458	Dec 2016	-		0.458	Continuing	Continuing	Continuing

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / F/A-18 Squadrons	Project (Number/Name) 1662 / F/A-18 Improvement
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2017PB - 0204136N - 1662

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / F/A-18 Squadrons	Project (Number/Name) 1662 / F/A-18 Improvement
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Test Wing Maintenance	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	
Support																													
	Test Wing Maintenance Support																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / <i>F/A-18 Squadrons</i>	Project (Number/Name) 1662 / <i>F/A-18 Improvement</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Obsolescence Redesign																												
System Development																												
F/A-18 Weapon System & Ancillary Equipment	Obsolescence Redesign																											

2017PB - 0204136N - 1662

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / F/A-18 Squadrons	Project (Number/Name) 1662 / F/A-18 Improvement
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Infra-Red Search and Track</i>				
Acquisition Milestones: Milestones: Full Rate Production Decision Review (FRP DR)	3	2017	3	2017
Acquisition Milestones: Milestones: Milestone C (MS C)	1	2015	1	2015
Acquisition Milestones: Milestones: Initial Operational Capability (IOC)	3	2018	3	2018
System Development: Engineering and Manufacturing Development: Engineering and Manufacturing Development	1	2015	1	2020
System Development: Engineering and Manufacturing Development: Eng Dev Model (EDM) IRST Delivery - (Environmental Evaluation Unit-EEU)	1	2015	1	2015
System Development: Engineering and Manufacturing Development: EDM Conversion	1	2015	4	2016
System Development: Software Development: H10+ Fleet Release	2	2017	2	2017
System Development: Software Development: H12 Fleet Release	4	2017	4	2017
System Development: Software Development: IRST Software Build	1	2015	3	2015
System Development: Reviews: Integrated Baseline Review (IBR) - 1	3	2015	3	2015
System Development: Reviews: Integrated Baseline Review (IBR) - 2	2	2016	2	2016
System Development: Reviews: Operational Testing Readiness Review (OTRR)	1	2016	1	2016
System Development: Reviews: Physical Configuration Audit (PCA)	2	2017	2	2017
Test and Evaluation: Integration Testing: Integration Testing (IT-B1)	1	2015	1	2015
Test and Evaluation: Integration Testing: Integration Testing (IT-C1)	1	2015	1	2016
Test and Evaluation: Operational Testing: Operational Assessment (OA) 2	3	2015	3	2015
Test and Evaluation: Operational Testing: Integrated Operational Test & Evaluation (IOT&E)	1	2016	3	2016
Test and Evaluation: Operational Testing: OPEVAL Report	3	2016	3	2016
Production Milestones: Contract Awards: EDM (Block II)	2	2016	2	2016
Production Milestones: Contract Awards: LRIP 1 APN	2	2015	2	2015

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / F/A-18 Squadrons	Project (Number/Name) 1662 / F/A-18 Improvement
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Production Milestones: Contract Awards: LRIP 2 APN	1	2016	1	2016
Production Milestones: Contract Awards: FRP 1 Start	3	2017	3	2017
Production Milestones: Contract Awards: FRP 2 Start	1	2018	1	2018
Production Milestones: Contract Awards: FRP 3 Start	1	2019	1	2019
Production Milestones: Contract Awards: FRP 4 Start	1	2020	1	2020
Production Milestones: Deliveries: Productionized EDM (Qty 4)	2	2015	4	2015
Production Milestones: Deliveries: LRIP 1 (Lot 1 - Qty 6)	2	2017	4	2017
Production Milestones: Deliveries: LRIP 2 (Lot 2 - Qty 12)	1	2018	1	2019
Production Milestones: Deliveries: FRP 1 (Lot 3 - Qty 12)	2	2019	2	2020
Production Milestones: Deliveries: FRP 2 (Lot 4 - Qty 13)	2	2020	1	2021
Multi-System Integration				
Systems Development - Software Development: H14 Software Development	1	2015	1	2016
Systems Development - Software Development: H16 Software Development	1	2016	1	2018
Systems Development - Software Development: 29C Software Development	1	2015	1	2016
Systems Development - Software Development: 31C Software Development	1	2016	1	2018
Test & Evaluation: H10 Operational Testing	2	2015	2	2016
Test & Evaluation: H12 Integration Testing	1	2015	2	2016
Test & Evaluation: H12 Operational Testing	4	2016	4	2017
Test & Evaluation: 27C Integration Testing	1	2015	2	2016
Test & Evaluation: 27C Operational Testing	3	2016	1	2017
Test & Evaluation: H14 Integration Testing	2	2016	1	2018
Test & Evaluation: H14 Developmental Testing	4	2017	3	2018
Test & Evaluation: H14 Operational Testing	4	2018	4	2019
Test & Evaluation: H16 Integration Testing	2	2018	4	2020
Test & Evaluation: 29C Integration Testing	2	2016	4	2017
Test & Evaluation: 29C Operational Testing	1	2018	3	2018

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / <i>F/A-18 Squadrons</i>	Project (Number/Name) 1662 / <i>F/A-18 Improvement</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Test & Evaluation: 31C Integration Testing	2	2018	4	2020
Deliveries: H10 Fleet Release	3	2016	3	2016
Deliveries: H12 Fleet Release	4	2017	4	2017
Deliveries: 27C Fleet Release	2	2017	2	2017
Deliveries: 29C Fleet Release	4	2018	4	2018
Deliveries: H14 Fleet Release	4	2019	4	2019
Deliveries: H16 Fleet Release	4	2021	4	2021
Deliveries: 31C Fleet Release	4	2020	4	2020
<i>Flight Plan Engineering</i>				
System Development: Hardware and Software Development	1	2015	4	2021
System Development: Modeling and Simulation	1	2015	4	2021
System Development: Studies and Analysis	1	2015	4	2021
Test and Evaluation: Developmental, Integration and Operational Testing	1	2015	4	2021
Deliveries: Software Fleet Release: H10 Fleet Release	3	2016	3	2016
Deliveries: Software Fleet Release: H12 Fleet Release	4	2017	4	2017
Deliveries: Software Fleet Release: 27C Fleet Release	2	2017	2	2017
Deliveries: Software Fleet Release: 29C Fleet Release	4	2018	4	2018
Deliveries: Software Fleet Release: H14 Fleet Release	4	2019	4	2019
Deliveries: Software Fleet Release: H16 Fleet Release	4	2021	4	2021
Deliveries: Software Fleet Release: 31C Fleet Release	4	2020	4	2020
<i>Test Wing Maintenance</i>				
Support: Test Wing Maintenance Support	1	2015	4	2021
<i>Obsolescence Redesign</i>				
System Development: F/A-18 Weapon System & Ancillary Equipment: Obsolescence Redesign Development & Testing	1	2015	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0204136N / F/A-18 Squadrons				Project (Number/Name) 2065 / F/A-18 Radar Upgrade			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2065: F/A-18 Radar Upgrade	708.949	3.033	15.022	13.926	-	13.926	9.197	7.117	8.911	8.916	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

F/A-18 Radio Detection and Ranging (RADAR) Upgrade: The F/A-18 RADAR Upgrade, Active Electronically Scanned Array (AESA) development program, which began in FY 1999, is the last of three pre-planned upgrades to the F/A-18 Type/Model/Series RADAR. The AESA system corrects operational test deficiencies noted in the AN/APG-73. It provides multi-target tracking, Synthetic Aperture RADAR (SAR) imagery, SAR Target Location Error (TLE), and improved spotlight map resolution. In addition, it provides greater lethality than previous F/A-18 RADARs by allowing full tactical support of existing and planned air-to-air (A/A) and air-to-ground (A/G) weapons and it significantly increases A/A and A/G detection and tracking ranges. The AESA system provides greater survivability through self-protection and standoff jamming capabilities, while its greater range allows for reduced detection by enemy RADAR. This budget continues spiral capability development of AESA with increased efforts to address Phase II Operational Requirements Document requirements such as Counter-Electronic Attack(CEA) against multiple Radio Frequency Emitters, AESA Multi-Jammer Electronic Protection, Precision TLE Improvement, Monopulse and 5th/6th Channel development and Air Combat Maneuvering/Short Range Search and Track development and includes upgrades to RADAR Instrumentation, test and evaluation assets and threat assets, and upgraded modeling and simulation of both clean and Electronic Attack threat environments. Budget also supports development and testing of design modifications to address obsolescence issues with APG-65, APG-73 and APG-79 RADAR systems.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Distributed Targeting - CEA Software Development, Developmental Testing, Operational Testing, & Integration	2.973	9.954	12.691	0.000	12.691
Articles:	-	-	-	-	-
Description: Funding being utilized to support hardware (HW) and software (SW) capabilities development, integration and associated testing.					
FY 2015 Accomplishments: Continued HW and SW development, integration and testing of instrumentation required to support AESA RADAR spiral capability upgrades. Funds program management and engineering support required for the APG-65/73-79 RADAR systems.					
FY 2016 Plans: Continue SW development, integration and testing of instrumentation required to support AESA RADAR spiral capability upgrades. Funds program management and engineering support required for the APG-65/73-79 RADAR systems.					
FY 2017 Base Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / F/A-18 Squadrons	Project (Number/Name) 2065 / F/A-18 Radar Upgrade

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Continue HW/SW development, integration and testing of instrumentation required to support AESA RADAR spiral capability upgrades. Funds program management and engineering support required for the APG-65/73-79 RADAR systems. Funds procurement of AESA test assets required at laboratories for test and development efforts. FY 2017 OCO Plans: N/A					
Title: F/A-18 RADAR Obsolescence Redesign Description: Develop and test design modifications to address obsolescence issues. FY 2015 Accomplishments: Developed and tested design modifications to hardware components and software systems in response to F/A-18 RADAR system obsolescence issues. FY 2016 Plans: Develop and test design modifications to hardware components and software systems in response to F/A-18 RADAR system obsolescence issues. FY 2017 Base Plans: Develop and test design modifications to hardware components and software systems in response to F/A-18 RADAR system obsolescence issues. FY 2017 OCO Plans: N/A	0.060	5.068	1.235	0.000	1.235
Articles:	-	-	-	-	-
Accomplishments/Planned Programs Subtotals	3.033	15.022	13.926	0.000	13.926

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APN/0143: EA-18G	1,503.534	858.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	12,905.711
• APN/05250: F-18 Series Mod (OSIP 002-07)	68.571	91.620	148.268	-	148.268	247.603	219.230	244.512	168.342	72.061	2,088.581
• APN/0145: FA-18E/F	0.000	350.000	0.000	184.912	184.912	1,309.000	0.000	0.000	0.000	0.000	45,380.856

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / F/A-18 Squadrons	Project (Number/Name) 2065 / F/A-18 Radar Upgrade
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

The Active Electronically Scanned Array program continues developmental efforts following a successful Full Rate Production milestone decision, after completing a two-phase Acquisition approach during the FY1999 through FY2007 timeframe. This strategy continues utilization of reform initiatives such as: early partnering with industry; leveraging industry investment; optimizing use of Commercial Off-The Shelf software and Non-Developmental Item; using Cost as an Independent Variable; and Electronic Data Deliverables. Basic Ordering Agreement orders for Request for Proposal developments are in place for Boeing, the airframe prime manufacturer/integrator, and Raytheon, the Radio Detection and Ranging manufacturer, for focused risk reduction and sustainment of prior developmental activities.

E. Performance Metrics

Execute the system engineering process for software delivery and support the design and development of Electronic Protection, air to air, and air to ground capabilities.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
1319 / 7				PE 0204136N / F/A-18 Squadrons				2065 / F/A-18 Radar Upgrade								
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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	WR	NAWCAD : Pax River, MD	3.912	0.953	Nov 2014	1.004	Nov 2015	2.180	Nov 2016	-		2.180	Continuing	Continuing	Continuing	
CEA - Development/ Integration Counter Electronic Attack (CEA)	Various	NSMA : Arlington, VA	71.021	0.000		0.329	Dec 2015	0.382	Dec 2016	-		0.382	Continuing	Continuing	Continuing	
Hardware-Obsolescence	MIPR	DMEA : Sacramento, CA	0.000	0.000		5.000	May 2016	1.165	May 2017	-		1.165	0.000	6.165	-	
Prior Year Prod Dev cost no longer funded in FYDP	Various	Various : Various	468.195	0.000		0.000		0.000		-		0.000	0.000	468.195	-	
Subtotal			543.128	0.953		6.333		3.727		-		3.727	-	-	-	
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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	
Software Development (Instrumentation)	WR	NAWCWD : China Lake, CA	39.031	0.352	Dec 2014	0.500	Dec 2015	0.250	Dec 2016	-		0.250	Continuing	Continuing	Continuing	
Obsolescence Redesign	Various	Various : Various	0.060	0.060	Jun 2015	0.068	Mar 2016	0.070	May 2017	-		0.070	Continuing	Continuing	Continuing	
Prior Year Support cost no longer funded in the FYDP	Various	Various : Various	2.027	0.000		0.000		0.000		-		0.000	0.000	2.027	-	
Subtotal			41.118	0.412		0.568		0.320		-		0.320	-	-	-	
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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	
Operational Test	WR	NAWCWD : China Lake, CA	0.000	0.000		0.300	Dec 2015	0.300	Dec 2016	-		0.300	Continuing	Continuing	Continuing	
AESA Radar Test Asset	C/FPIF	Raytheon : El Segundo, CA	0.000	0.000		6.000	Mar 2016	9.000	Mar 2017	-		9.000	0.000	15.000	15.000	
Prior Year T&E cost no longer funded in FYDP	Various	Various : Various	110.808	0.000		0.000		0.000		-		0.000	0.000	110.808	-	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / F/A-18 Squadrons	Project (Number/Name) 2065 / F/A-18 Radar Upgrade
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract		
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost					
Subtotal				110.808	0.000			6.300		9.300		-		9.300	-	-	-

Remarks
FY17 funding increases due to requirement for operational testing of software configuration sets and procurement of test assets for the Advance Weapons Lab(AWL).

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract		
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost					
Program Management Support (Seaport CSS)	C/CPFF	Wyle : Pax River, MD	7.500	0.543	Dec 2014	0.543	Dec 2015	0.414	Dec 2016	-		0.414	0.000	9.000	9.000		
Contractor Engineering Support	Various	Various : Various	2.721	0.357	Nov 2014	0.500	Dec 2015	0.018	Dec 2016	-		0.018	0.000	3.596	-		
Program Management Support	WR	NAWCAD : Pax River, MD	2.389	0.723	Nov 2014	0.723	Dec 2015	0.101	Dec 2016	-		0.101	0.800	4.736	-		
Travel	Various	NAVAIR : Pax River, MD	1.285	0.045	Oct 2014	0.055	Nov 2015	0.046	Nov 2016	-		0.046	0.000	1.431	-		
Subtotal				13.895	1.668			1.821		0.579		-		0.579	0.800	18.763	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	708.949	3.033	15.022	13.926	-	13.926	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / F/A-18 Squadrons	Project (Number/Name) 2065 / F/A-18 Radar Upgrade
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F/A-18 Radar Upgrade	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
Milestones																												
Systems Development																												
Hardware/Software Development	Obsolescence Redesign																											
	Instrumentation Development																											
	TLE Development																											
	ACM Mode Development																											
Reviews																												
Test & Evaluation																												
Integrated Test & Evaluation	H12 IT																											
					H14 IT												H16 IT											
Operational Test & Evaluation	H10 OT								H12 OT								H14 OT											
Production Milestones																												
Radar Deliveries	Retrofit Radar Deliveries																											
	FRP - 14 (Lot 37)				FRP - 15 (Lot 38)				FRP - 16 (Lot 39)																			
Software Deliveries					H10 Release ▼								H12 Release ▼								H14 Release ▼							

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / <i>F/A-18 Squadrons</i>	Project (Number/Name) 2065 / <i>F/A-18 Radar Upgrade</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>F/A-18 Radar Upgrade</i>				
Systems Development: Hardware/Software Development: Obsolescence Redesign Development & Testing	1	2015	4	2021
Systems Development: Hardware/Software Development: Instrumentation Development	1	2015	1	2021
Systems Development: Hardware/Software Development: TLE Development	1	2015	2	2021
Systems Development: Hardware/Software Development: ACM Mode Development	1	2015	2	2021
Test & Evaluation: Integrated Test & Evaluation: H12 Integration Testing	1	2015	2	2016
Test & Evaluation: Integrated Test & Evaluation: H14 Integration Testing	2	2016	1	2018
Test & Evaluation: Integrated Test & Evaluation: H16 Integration Testing	2	2018	4	2021
Test & Evaluation: Operational Test & Evaluation: H10 Operational Testing	2	2015	2	2016
Test & Evaluation: Operational Test & Evaluation: H12 Operational Testing	4	2016	4	2017
Test & Evaluation: Operational Test & Evaluation: H14 Operational Testing	4	2018	4	2019
Production Milestones: Radar Deliveries: Retrofit Radar Deliveries	1	2015	4	2019
Production Milestones: Radar Deliveries: FRP Deliveries B - 14 (Lot 37)	1	2015	4	2015
Production Milestones: Radar Deliveries: FRP Deliveries B - 15 (Lot 38)	1	2016	4	2016
Production Milestones: Radar Deliveries: FRP Deliveries B - 16 (Lot 39)	1	2017	4	2017
Production Milestones: Software Deliveries: H10 FLEET RELEASE	3	2016	3	2016
Production Milestones: Software Deliveries: H12 FLEET RELEASE	4	2017	4	2017
Production Milestones: Software Deliveries: H14 FLEET RELEASE	4	2019	4	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0204136N / F/A-18 Squadrons				Project (Number/Name) 2069 / F/A-18 Infrared Search and Track (IRST)			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2069: F/A-18 Infrared Search and Track (IRST)	0.000	0.000	0.000	107.313	-	107.313	84.180	74.232	53.835	54.912	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Not a New Start in FY17, previous work was conducted under project unit 1662.

A. Mission Description and Budget Item Justification

F/A-18 Infra-Red Search and Track (IRST): The F/A-18 E/F IRST system is a passive long-wave Infra-Red (IR) sensor which provides an alternate fire control system in a high Electronic Attack / Radio Detection and Ranging (RADAR) denied environment. Block II IRST upgrades the Infra-Red Receiver (IRR) and processor to provide full Capabilities Development Document (CDD) capability and enhanced warfighting capability through an improved engagement timeline, improved situational awareness, longer range passive detection and tracking and a larger field of regard with specification performance.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Infra-Red Search and Track (IRST)	0.000	0.000	107.313	0.000	107.313
Articles:	-	-	6	-	6
Description: Technology development and engineering and manufacturing development of an IRST sensor for the F/A-18 E/F. Block I supports technology development and engineering and manufacturing development of an IRST sensor for the F/A-18E/F to provide an alternate fire control system in a high Electronic Attack / Radio Detection and Ranging (RADAR) denied environment. Block II IRST upgrades the Infra-Red Receiver (IRR) and processor to provide full Capabilities Development Document (CDD) capability and enhanced warfighting capability through an improved engagement timeline, improved situational awareness, longer range passive detection and tracking and a larger field of regard with specification performance.					
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans: Develop and test design modifications to hardware components and software systems in response to obsolescence issues. Continue R&M ECP development, modernize Block I Engineering Development Model					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / F/A-18 Squadrons	Project (Number/Name) 2069 / F/A-18 Infrared Search and Track (IRST)

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
(EDM) pods to upgraded R&M configuration, and conduct integration testing as required. Complete Block I IOT&E. Complete IRST Block II Technology Maturation and Risk Reduction. Conduct IRST Block II Preliminary Design Review. Begin IRST Block II Engineering and Manufacturing Development, procure six IRST Block II EDMs (RDT&E funded). Begin Block I EDM conversion to Block II configuration. Conduct Integrated Baseline Review for LRIP-3 and award LRIP-3 production contract (APN funded).					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	107.313	0.000	107.313

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APN/05250: F-18 Series Mod (OSIP 04-14)	69.815	110.584	110.920	-	110.920	104.393	129.011	150.230	165.000	781.777	1,621.730

Remarks

D. Acquisition Strategy

Infra-Red Search and Track (IRST). The IRST program is a Navy program in the Production and Deployment phase. The IRST Block I system developed by the Navy will meet the requirements for a passive infrared alternate fire control solution capability. This capability will reach Initial Operational Capability (IOC) in FY 2019. The IRST Block II system will be developed by the Navy to provide the full Capability Development Document (CDD) capability. The IRST Block II system will IOC in FY2023.

E. Performance Metrics

IRST Program achieved MS B on 17 June 2011, achieved MS C on 02 December 2014, and is scheduled for IOC in 1st Quarter of FY2019. IRST Block II systems are scheduled to begin production in FY2021 and IOC in FY2023.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity 1319 / 7				R-1 Program Element (Number/Name) PE 0204136N / F/A-18 Squadrons				Project (Number/Name) 2069 / F/A-18 Infrared Search and Track (IRST)							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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
Primary Development (Hardware/Software) Infra-Red Search and Track (IRST)	Various	Boeing : St. Louis, MO	0.000	0.000		0.000		90.060	Dec 2016	-		90.060	206.813	296.873	-
Hardware Development	MIPR	USAF (MIT) : Hanscom AFB, MA	0.000	0.000		0.000		1.500	Nov 2016	-		1.500	Continuing	Continuing	Continuing
Software (S/W) Development	WR	NAWCWD : China Lake, CA	0.000	0.000		0.000		1.871	Nov 2016	-		1.871	Continuing	Continuing	Continuing
Development Support	WR	NAWCAD : Lakehurst, NJ	0.000	0.000		0.000		0.218	Nov 2016	-		0.218	Continuing	Continuing	Continuing
Development Support	WR	FRC Southeast : Jacksonville, FL	0.000	0.000		0.000		0.917	Nov 2016	-		0.917	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		94.566		-		94.566	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 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
Development Support	WR	NAWCWD : China Lake, CA	0.000	0.000		0.000		0.475	Nov 2016	-		0.475	Continuing	Continuing	Continuing
Development Support	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		2.209	Nov 2016	-		2.209	Continuing	Continuing	Continuing
Development Support	WR	NSWC : Indian Head, MD	0.000	0.000		0.000		0.060	Dec 2016	-		0.060	Continuing	Continuing	Continuing
Development Support	WR	NAWCWD : Pt. Mugu, CA	0.000	0.000		0.000		0.022	Dec 2016	-		0.022	Continuing	Continuing	Continuing
Obsolescence Redesign	Various	Various : Various	0.000	0.000		0.000		0.250	Dec 2016	-		0.250	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		3.016		-		3.016	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / F/A-18 Squadrons	Project (Number/Name) 2069 / F/A-18 Infrared Search and Track (IRST)
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation (DT&E)	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		0.889	Nov 2016	-		0.889	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NAWCWD : China Lake, CA	0.000	0.000		0.000		2.077	Nov 2016	-		2.077	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E)	WR	OPTEVFOR : VX-9	0.000	0.000		0.000		4.050	Nov 2016	-		4.050	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E) - CSS	Various	OPTEVFOR : VX-9	0.000	0.000		0.000		0.247	Dec 2016	-		0.247	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E)	WR	OPTEVFOR : Norfolk, VA	0.000	0.000		0.000		0.006	Nov 2016	-		0.006	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E) - CSS	Various	OPTEVFOR : Norfolk, VA	0.000	0.000		0.000		0.096	May 2017	-		0.096	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		7.365		-		7.365	-	-	-

Remarks
Test Assets (AIM-120) procured as live fire test assets in support of F/A-18E/F Improvements programs (IRST, MSI (SCS block builds)) and weapons integration efforts specific to the F/A-18.

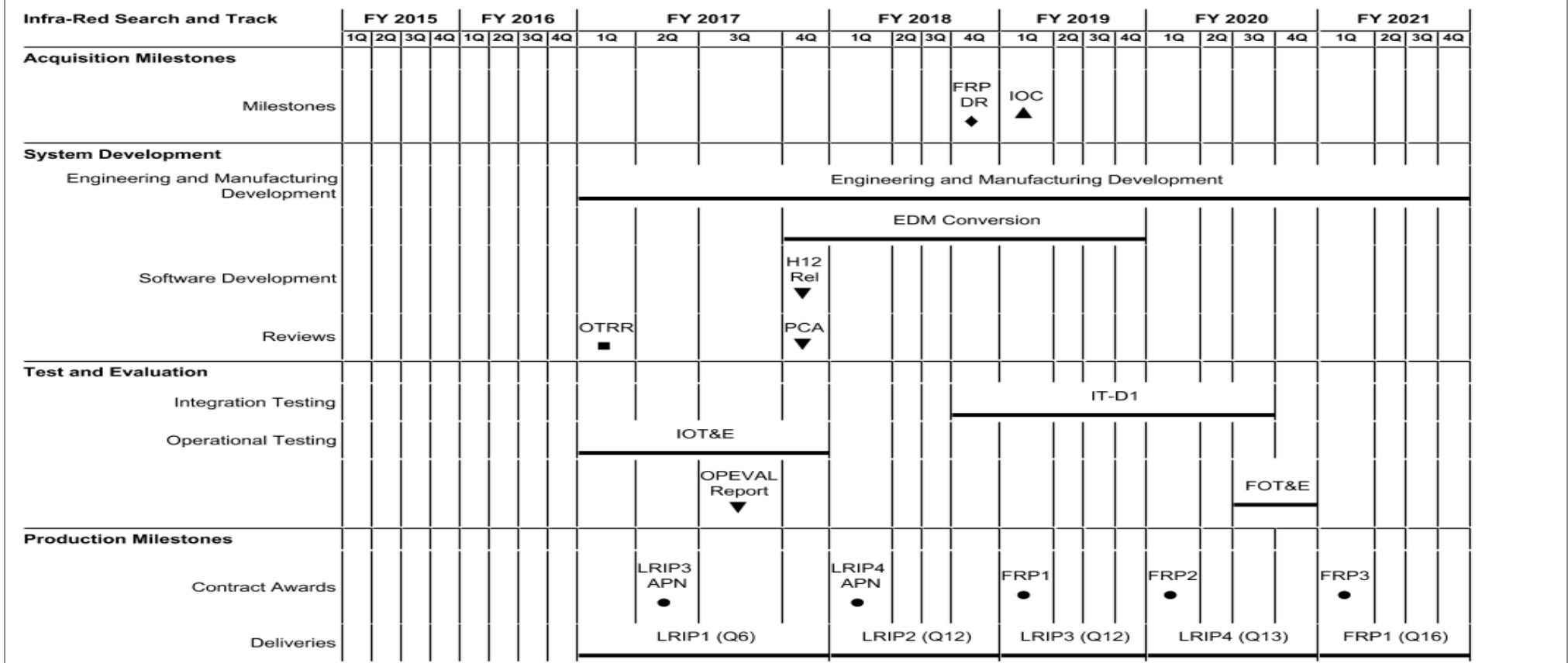
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Travel	Various	NAVAIR : Patuxent River, MD	0.000	0.000		0.000		0.020	Oct 2016	-		0.020	Continuing	Continuing	Continuing
Program Management Support - MISC	Various	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		2.346	Oct 2016	-		2.346	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		2.366		-		2.366	-	-	-

Project Cost Totals	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
	0.000	0.000	0.000	107.313	-	107.313	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / F/A-18 Squadrons	Project (Number/Name) 2069 / F/A-18 Infrared Search and Track (IRST)
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / F/A-18 Squadrons	Project (Number/Name) 2069 / F/A-18 Infrared Search and Track (IRST)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Infra-Red Search and Track				
Acquisition Milestones: Milestones: Full Rate Production Decision Review (FRP DR)	4	2018	4	2018
Acquisition Milestones: Milestones: Initial Operational Capability (IOC)	1	2019	1	2019
System Development: Engineering and Manufacturing Development: Engineering and Manufacturing Development	1	2017	4	2021
System Development: Engineering and Manufacturing Development: EDM Conversion	4	2017	4	2019
System Development: Software Development: H12 Fleet Release	4	2017	4	2017
System Development: Reviews: Operational Testing Readiness Review (OTRR)	1	2017	1	2017
System Development: Reviews: Physical Configuration Audit (PCA)	4	2017	4	2017
Test and Evaluation: Integration Testing: Integration Testing (IT-D1)	4	2018	3	2020
Test and Evaluation: Operational Testing: Integrated Operational Test & Evaluation (IOT&E)	1	2017	4	2017
Test and Evaluation: Operational Testing: OPEVAL Report	3	2017	3	2017
Test and Evaluation: Operational Testing: Follow-on Test & Evaluation (FOT&E)	3	2020	4	2020
Production Milestones: Contract Awards: LRIP 3 APN	2	2017	2	2017
Production Milestones: Contract Awards: LRIP 4 APN	1	2018	1	2018
Production Milestones: Contract Awards: FRP 1 Start	1	2019	1	2019
Production Milestones: Contract Awards: FRP 2 Start	1	2020	1	2020
Production Milestones: Contract Awards: FRP 3 Start	1	2021	1	2021
Production Milestones: Deliveries: LRIP 1 (Lot 1 - Qty 6)	1	2017	4	2017
Production Milestones: Deliveries: LRIP 2 (Lot 2 - Qty 12)	1	2018	4	2018
Production Milestones: Deliveries: LRIP 3 (Lot 3 - Qty 12)	1	2019	4	2019
Production Milestones: Deliveries: LRIP 4 (Lot 4 - Qty 13)	1	2020	4	2020

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / <i>F/A-18 Squadrons</i>	Project (Number/Name) 2069 / <i>F/A-18 Infrared Search and Track (IRST)</i>

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Production Milestones: Deliveries: FRP 1 (Lot 5 - Qty 16)	1	2021	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0204136N / F/A-18 Squadrons				Project (Number/Name) 9999 / Congressional Adds			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
9999: <i>Congressional Adds</i>	0.000	9.868	11.500	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	21.368
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Congressional Add.

Research, Development, Test and Evaluation (RDT&E) funding to support the integration feasibility of the Brimstone II air-to-ground missile on the F/A-18E/F. This is the continuation of the Phase I assessment currently being conducted through funding provided in FY14. FY15 funding was for the continued qualification work and to assess software compatibility with the F/A-18E/F software configuration sets (SCS). Test and evaluation efforts are being conducted as required to qualify the missile to the Navy environment and to quantify missile performance. Brimstone II system functionality and response to stimuli will be measured in order to determine whether the missile is compatible with the F/A-18E/F in the current design. FY16 funding for continued qualification efforts.

Noise Reduction study conducted by the University of Mississippi National Center for Physical Acoustics (NCPA).

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016
Congressional Add: Dual Mode Brimstone Integration	9.868	10.000
FY 2015 Accomplishments: FY15 Congressional Add funds will be used to continue qualification work and to begin assessing software compatibility between the Brimstone II system and the F/A-18E/F SCS. Data for previous United Kingdom Royal Air Force (RAF) airborne qualification and missile design data will be provided to NAVAIR Technical Area Experts (TAE'S) for analysis. The TAE's will determine data requirements based on this data.		
FY 2016 Plans: N/A		
Congressional Add: Noise Reduction	0.000	1.500
FY 2015 Accomplishments: N/A		
FY 2016 Plans: N/A		
Congressional Adds Subtotals	9.868	11.500

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / <i>F/A-18 Squadrons</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>
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D. Acquisition Strategy

Not Required for Congressional Adds.

E. Performance Metrics

Not Required for Congressional Adds.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / F/A-18 Squadrons	Project (Number/Name) 9999 / Congressional Adds
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Brimstone-Systems Engineering	C/IDIQ	Various : Various	0.000	3.900	Aug 2015	10.000	Sep 2016	0.000		-		0.000	0.000	13.900	13.900
Subtotal			0.000	3.900		10.000		0.000		-		0.000	0.000	13.900	13.900

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Brimstone-Studies and Analysis	TBD	Various : Various	0.000	0.300	Aug 2015	0.000		0.000		-		0.000	0.000	0.300	-
Noise Reduction-Studies and Analysis	TBD	Mississippi : NCPA	0.000	0.000		1.500	Mar 2016	0.000		-		0.000	0.000	1.500	-
Subtotal			0.000	0.300		1.500		0.000		-		0.000	0.000	1.800	-

Remarks

Noise reduction study conducted by the University of Mississippi National Center for Physical Acoustics (NCPA).

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test Development-Brimstone	Various	NAWCWD : China Lake, CA	0.000	1.000	May 2015	0.000		0.000		-		0.000	0.000	1.000	-
Test Articles-Brimstone	TBD	MBDA : Various	0.000	2.000	Oct 2015	0.000		0.000		-		0.000	0.000	2.000	-
Test DT/OT-Brimstone	Various	NAWCWD : China Lake, CA	0.000	2.000	May 2015	0.000		0.000		-		0.000	0.000	2.000	-
Subtotal			0.000	5.000		0.000		0.000		-		0.000	0.000	5.000	-

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / <i>F/A-18 Squadrons</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Dual Mode Brimstone Integration Test and Evaluation</i>				
Phase II - Lethality	2	2015	4	2017
Noise Reduction: Study and Analysis	2	2016	2	2017

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