Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy											Date: February 2018	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0604270N *I Electronic Warfare (EW) Dev*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	965.244	44.894	54.055	89.824	-	89.824	127.108	173.933	127.077	137.294	Continuing	Continuing
0556: *EW Counter Response*	473.791	15.138	16.433	17.040	-	17.040	59.163	99.693	39.703	32.841	Continuing	Continuing
1742: *EW Technical Development and T&E*	2.682	1.525	1.106	1.833	-	1.833	1.764	1.614	1.650	1.684	Continuing	Continuing
2175: *Tactical Air Electronic Warfare*	488.771	7.015	2.097	45.074	-	45.074	44.582	57.252	70.615	77.543	0.000	792.949
3308: *Technology Development*	0.000	0.000	2.286	6.108	-	6.108	6.219	8.476	8.634	8.817	Continuing	Continuing
3309: *Assault Survivability Optimization*	0.000	3.484	0.851	0.836	-	0.836	0.827	0.850	0.867	0.886	Continuing	Continuing
3327: *MAGTF EW Aviation Development*	0.000	16.115	29.643	18.562	-	18.562	13.272	4.849	4.606	14.494	Continuing	Continuing
3371: *MAGTF EW Interoperability Development*	0.000	1.617	1.639	0.371	-	0.371	1.281	1.199	1.002	1.029	Continuing	Continuing

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): 418

A. Mission Description and Budget Item Justification

This program element includes development of Electronic Warfare (EW) systems for the United States Navy (USN), United States Marine Corps (USMC), and United States Army tactical aircraft, USMC helicopters, surface combatants, data link vulnerability assessments, precision targeting, USN and USMC radio frequency jammers, and development and testing of electronic warfare devices for emerging threats and emergency contingencies. This element also includes development of Aircraft Survivability Equipment (ASE) and Electronic Warfare (EW)/countermeasures solutions for the USN, USMC and Coalition Aircraft to include studies and evaluations of current and future aircraft threats, modeling and simulation for improved countermeasure capabilities, and development and testing to address new and emerging threats.

This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

PE 0604279N and PE 0604376M consolidated to PE 0604270N beginning in FY 2017.

Project Unit 2175 Tactical Air Electronic Warfare Cost to Complete should read $82.128 Million. Total Cost should read $875.077 Million.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy					Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*			R-1 Program Element (Number/Name) PE 0604270N *I Electronic Warfare (EW) Dev*		
B. Program Change Summary ($ in Millions)	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**
Previous President's Budget	92.766	54.055	51.563	-	51.563
Current President's Budget	44.894	54.055	89.824	-	89.824
Total Adjustments	-47.872	0.000	38.261	-	38.261
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	3.240	0.000			
• SBIR/STTR Transfer	-0.724	0.000			
• Program Adjustments	-44.000	0.000	13.510	-	13.510
• Rate/Misc Adjustments	0.000	0.000	24.751	-	24.751
• Congressional Directed Reductions Adjustments	-6.388	-	-	-	-

Change Summary Explanation

Cost: Not Applicable.
Project Unit 3309 / Assault Survivability Optimization: 0.140M reprogrammed from PE 0604272N PU 3304 to determine applicability of 1x1x8 countermeasures flares on Navy aircraft.

Technical: Not Applicable.

Schedule:
Project Unit 0556 / EW COUNTER RESPONSE: N/A

Project Unit 1742 / EW Technical Development and T&E: N/A

Project Unit 2175 / Tactical Air Electronic Warfare: Acquisition Milestones: ALQ-214 SW Improvement Initial Operational Capability (IOC) was changed to a Fleet Release. ALQ-214 Adaptive Radar Countermeasures (ARC) Contract Award was added in the 2nd Qtr. FY 2019. Dual Band Decoy (DBD) Contract Award was added in the 3rd Qtr. FY 2019. Systems Development: ALQ-214 ARC Development: ALQ-214 ARC Systems Requirements Review was added in 3rd Qtr. FY 2019. ALQ-214 ARC Preliminary Design Review was added in 1st Qtr. FY 2020. ALQ-214 ARC Critical Design Review was added in 2nd Qtr. FY 2020. ALQ-214 ARC Build 1 was added in 3rd Qtr. FY 2020. AlQ-214 ARC Build 2 was added in 1st Qtr. FY 2021. ALQ-214 ARC Build 3 was added in 3rd Qtr. FY 2021. ALQ-214 ARC Build 3.1 was added in 1st Qtr. 2022. ALQ-214 ARC Build 4 was added in 2nd Qtr. FY 2022. DBD Development: DBD Development from 3rd Qtr. FY 2019 through 4th Qtr. FY 2024 was added. DBD Systems Requirements Review was added in 4th Qtr. FY 2019. DBD Preliminary Design Review

was added in 2nd Qtr. FY 2020. DBD Critical Design Review was added in 4th Qtr. FY 2020. Test and Evaluation: ALQ-214 SW Improvement Testing: SWIP Developmental Testing/Integrated Testing DT/IT completion changed from 2nd Qtr. FY 2017 to 3rd Qtr. FY 2018 due to delays in software maturation and progression. ALQ-214 SW Improvement Integrated Test(IT)/Follow-on Test & Evaluation (FOT&E) was removed due to lack of closed-loop threat resources for test. ALQ-214 ARC Testing: ARC Developmental Testing from 4th Qtr. 2020 through 4th Qtr. 2021 was added. ARC Integrated Testing from 1st Qtr. 2022 through 3rd Qtr. 2022 was added. ARC Operational Testing from 1st Qtr. 2023 through 2nd Qtr. 2023 was added. DBD Developmental Testing from 4th Qtr. FY 2021 through 2nd Qtr. FY 2022 was added. DBD Integrated Testing from 3rd Qtr. FY 2022 through 2nd Qtr. FY 2023 was added. DBD Operational Testing from 3rd Qtr. FY 2023 through 4th Qtr. FY 2024 was added. Production Milestones: DBD Low Rate Initial Production was added in 2nd Qtr. FY 2022.

Project Unit 3308 / Technology Development: Milestones: Software Release 17 removed due to zero funding received in FY 2017. Contract Awards: Operational Flight Program (OFP) added in 2nd Qtr. FY 2018 with additional awards in the 2nd Qtr. of each year continuing through 2nd Qtr. 2023. Target Generator added in 2nd Qtr. FY 2018 and 2nd Qtr. FY 2019. Systems Development: Systems Development Reviews: FY 2017 Review removed due to zero funding received in FY 2017. System Development Analysis: FY-17 Analysis removed due to zero funding received in FY 2017. Threat Analysis/Technique Optimization added beginning in the 2nd Qtr. FY 2019 through 4th Qtr. FY 2019 and continuing from 2nd Qtr. through 4th Qtr. of each year through FY 2023. Software Development FY-17 SW/Technique Development removed due to zero funding received in FY 2017. Test and Evaluation: Integrated Evaluation: FY-17 Integrated Evaluation removed due to zero funding received in FY 2017. Threat Simulation and Test Assets: Digital Radio Frequency Memory (DFRM) Target Generator Development added in 2nd Qtr. FY 2018 through 3rd Qtr. FY 2019. DFRM Target Generator Integration and Testing added in 4th Qtr. FY 2019 through 4th Qtr. FY 2020. IDECM Model Development added in 1st Qtr. FY 2021 through 3rd Qtr. FY 2021. FY-22 IDECM Model Lab Integration added in 1st Qtr. FY 2022 through 3rd Qtr. FY 2022 and 1st Qtr. FY 2023 through 3rd Qtr. FY 2023.

Project Unit 3309 / Assault Survivability Optimization: FY 2017 flight test changed from 2nd/3rd Qtr to 3rd/4th Qtr due to aircraft and test range availability. FY17 Test MDF changed from 2nd Qtr to 3rd Qtr to align with flight test. FY 2018 flight test changed from 2nd/3rd Qtr to 4th Qtr due to test range availability. FY18 Test MDF changed from 2nd Qtr to 3rd Qtr to align with flight test. Added Radio Frequency Countermeasure (Chaff) fight test for MH-60 2nd Qtr 2018. Initiated modeling and simulation and engineering and evaluation to determine applicability of 1x1x8 countermeasures on Navy aircraft platforms.

Project Unit 3327 / MAGTF EW Aviation Development: AN/ALQ-231(V)3 UH-1 Jettison Capability, Electronic Warfare Services Architecture, Marine Air Ground Tablet Integration with AN/ALQ-231(V), MAGTF EW Jammer Techniques Development, KC-130 Integration for AN/ALQ-231(V)1 Block 1 Communication Jammer, Electronic Warfare Range Improvements and Upgrades funding and schedules were removed in FY 2017 due to funding realignments. Unmanned Aircraft System Electronic Warfare Payload MS B moved from 1st Qtr. FY 2018 to 4th Qtr. FY 2018 and UAS EW Lot 1 award moved from 3rd Qtr. FY 2020 to 2nd Qtr. FY 2021 to align with updated schedule. UAS EW Lot 1 deliveries moved from beginning in 3rd Qtr. FY 2021 to 2nd Qtr. FY 2022. IOC moved from 3rd Qtr. FY 2021 to 2nd Qtr. FY 2022 to align with the updated delivery schedule. AN/ALQ-231(V)3 production and delivery lots updated to align with current production and delivery schedule, but total quantity remains the same. AN/ALQ-231(V)3 Production-Delivery Lot 9 updated from Qty 10 to Qty 9, Production-Delivery Lot 10 updated from Qty 10 to Qty 22, and Production-Delivery Lots 11 and 12 no longer required. AN/ALQ-231(V)1 BLK X production and delivery lots updated to align with current production and delivery schedule, but total quantity remains the same. AN/ALQ-231(V)1 BLK X Production-Delivery Lot 1 updated from Qty 1 to Qty 2, and Production-Delivery Lot 2 updated from Qty 4 to Qty 3.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy	Date: February 2018
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604270N *I Electronic Warfare (EW) Dev*

Project Unit 3371 / MAGTF EW Interoperability Development: SPIRAL 2 FIELD EVALUATION MV-22 extended from 4th Qtr 2017 to 4th Qtr 2019 due to delayed testing and updated schedule

Project Units 3308, 3309, 3327, and 3371 were incorporated into PE 0604270N in PB17. PE 0604279N PU 3309 Prior Year amount is $21.566M.

Project Unit 3327 / MAGTF EW Aviation Development: The FY 2019 funding request was reduced by $2.668 million to account for the availability of prior year execution balances.

Project Unit 2175 Tactical Air Electronic Warfare: The FY 2019 funding request was reduced by $1.974 million to account for the availability of prior year execution balances.

The FY 2019 funding request was reduced by $0.684 million to reflect the Department of Navy's effort to support the Office of Management and Budget directed reforms for Efficiency and Effectiveness that include a lean, accountable, more efficient government.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / *Electronic Warfare (EW) Dev*	Project (Number/Name) 0556 / *EW Counter Response*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
0556: *EW Counter Response*	473.791	15.138	16.433	17.040	-	17.040	59.163	99.693	39.703	32.841	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Jammer Techniques Optimization (JATO) organization produces the jamming techniques and Electronic Attack (EA) optimization algorithms that are critical for current and future Airborne Electronic Attack (AEA) systems of the United States Navy (USN) and United States Marine Corps (USMC) to execute the evolving AEA mission. Through Modeling & Simulation (M&S), laboratory testing, and field testing, JATO optimizes parameters for existing EA systems (such as AN/ALQ-99 Tactical Jamming System (TJS) and the AN/ALQ-231(V) Intrepid Tiger II Family of Systems) to best counter existing threats, and applies that knowledge to define the requirements for follow-on AEA systems such as the Next Generation Jammer Mid-Band (NGJ-MB) and Next Generation Jammer Low-Band (NGJ-LB) programs. As commercial and military Radio Frequency (RF) threats evolve and proliferate, the JATO organization provides updated tactics, techniques, and procedures to maximize the potency of USN and USMC AEA in meeting the Combatant Command (COCOM) Commanders' EW priorities, to include Anti-Access/Area Denial (A2AD), Force Protection, Information Operations, and enhanced communications jamming. (Classified discussion available upon request).

JATO's Advanced Techniques Group (ATG) focuses specifically on electronic countermeasures to advanced threat weapon systems and Command, Control, and Communications (C3) networks that are challenging existing EA approaches, and how to best apply advances in geolocation and unknown threat characterization to EA responses. Additional efforts include risk reduction activities to evaluate and minimize EA interference with US weapons systems, and research/technology studies in support of upgrades to existing AEA systems such as the AN/ALQ-99 TJS.

The Electronic Warfare (EW) Advanced Capability Development project focuses on increasing the Department of the Navy's understanding and utilization of rapidly-evolving technologies that operate in the Electromagnetic spectrum. As commercial and military Radio Frequency (RF) threats evolve and proliferate, this project tracks the relevant technology, intelligence, and tactics to maximize the potency of USN and USMC AEA through the rapid insertion of emergent technologies into existing AEA systems.

The Special Mission Pods (SMPs) project will investigate developmental and existing technologies to determine the feasibility of rapidly integrating unique EA and electromagnetic surveillance (ES) capabilities into a platform agnostic capability for the USN. The resultant system(s) will be capable of rapidly adapting, detecting, and engaging evolving electronic warfare targets in cooperation with shared organic, theater, and national EA and ES assets.

AN/ALQ-99 TJS Band 9/10 pods will remain in service after the fielding of NGJ-MB and NGJ-LB. The Batwing Reflector Air to Ground variant for the AN/ALQ-99 Band 9/10 Transmitter will deliver improved EA capability as compared to the baseline AN/ALQ-99 Band 9/10 Transmitter. (Classified discussion available upon request).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: JAMMER TECHNIQUES OPTIMIZATION (JATO)	15.138	16.433	16.505	0.000	16.505

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 0556 / *EW Counter Response*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Articles:	-	-	-	-	-
FY 2018 Plans: The JATO organization will continue engineering development and test support of existing and emerging systems such as the EA-6B, EA-18G, and NGJ to address potential RF and Cyber/EW effects on current and evolving radar/communications threats. JATO will continue to generate techniques, tactics, and procedures to optimize the capabilities of systems such as, but not limited to, the AN/ALQ-99, USQ-113, ALQ-218, ALQ-227, AN/ALQ-231(V), ALE-43; and assist in requirements definitions of emerging AEA systems. JATO continues to lead efforts in support of Overseas Operations and Force Protection issues. (Classified discussion available upon request). Increase in funding from FY 2017 to FY 2018 is required to support additional testing requirements for developmental EW systems, and to provide increased flight and ground testing against adversary systems. Additionally, funds will provide for increased efforts of the Advanced Techniques Group (ATG) to address Cyber/ EW threats.					
FY 2019 Base Plans: The JATO organization will continue engineering development and test support of existing and emerging systems such as the EA-6B, EA-18G, and NGJ to address potential RF and Cyber/EW effects on current and evolving radar/communications threats. JATO will continue to generate tactics, techniques, and procedures to optimize the capabilities of systems such as, but not limited to, the AN/ALQ-99, USQ-113, ALQ-218, ALQ-227, AN/ALQ-231(V), ALE-43, and Unmanned Aerial Systems (UAS) payloads. JATO continues to meet COCOM Commanders' EW priorities including support for Overseas Contingency Operations and Force Protection. (Classified discussion available upon request).					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: Increase in funding from FY 2018 to FY 2019 is required to support planning for increased flight test and ground/ laboratory test efforts expected to commence in FY 2020. Additionally, the increased funding will allow the JATO program to capitalize on investments in Test & Evaluation (T&E) Ranges made via PE 0604759N: Major T&E Investment.					
Title: ELECTRONIC WARFARE (EW) ADVANCED DEVELOPMENT	0.000	0.000	0.535	0.000	0.535
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 0556 / *EW Counter Response*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
FY 2018 Plans: N/A ***FY 2019 Base Plans:*** This project focuses on increasing the Department of the Navy's understanding and utilization of rapidly-evolving technologies to control the Electromagnetic spectrum. Efforts in FY 2019 include the investigation of rapid technology insertions into systems including, but not limited to, the AN/ALQ-99, AN/ALQ-231(V), The Next Generation Jammer, and Unmanned Aerial Systems (UAS) payloads to address existing capability gaps on COCOM Commanders' Integrated Priority Lists Technology integration analysis to mitigate interoperability issues and ensure maximum lethality is also addressed. (Classified discussion available upon request). ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** This project was previously funded under the JAMMER TECHNIQUES OPTMIZATION (JATO) project and the tasking is now being separated in order to provide increased clarity and transparency.					
Accomplishments/Planned Programs Subtotals	15.138	16.433	17.040	0.000	17.040

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• APN/0513: *AEA Systems*	50.451	52.960	25.277	-	25.277	46.105	62.778	56.612	58.069	90.195	722.526

Remarks

D. Acquisition Strategy

The JATO organization, comprised of a partnership between the Government and several University Aligned Research Centers, continues to research EW tactics and techniques. The JATO prime delivery order, a cost plus fixed fee contract that covers the period of FY 2017 through FY 2021, was awarded to Johns Hopkins University in 4th Qtr. FY 2017.

The Electronic Warfare (EW) Advanced Capability Development project will investigate developmental and existing technologies from commercial and governmental sources for incorporation into USN and USMC AEA systems. These technologies, once demonstrated to have sufficient maturity, will transition into the applicable acquisition programs. Additionally, the project will pursue technology development and demonstration through rapid acquisition or Speed to Fleet initiatives to the greatest extent possible.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 0556 / *EW Counter Response*

The Special Mission Pods project will investigate developmental and existing technologies commencing in 2Qtr. FY 2020 to enable United States Navy (USN) electronic warfare technology to maintain relevancy and superiority against rapidly evolving electronic threats. These efforts will result in the integration of new, modified, or upgraded electronic warfare pods for USN aircraft platforms.

The Batwing Reflector Air to Air variant for the AN/ALQ-99 Band 9/10 Transmitter began procurement in FY 2017 as part of a Speed to Fleet initiative. Development of the Batwing Reflector Air to Ground variant for the AN/ALQ-99 Band 9/10 Transmitter flown on the EA-18G platform will commence in 2Qtr. FY 2020 and will capitalize on investments already made on the Batwing Air to Air variant.

E. Performance Metrics

JATO development counters enemy radar systems and communication systems to provide techniques to protect allied forces.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 0556 / *EW Counter Response*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary HDW Develop - ICAP III	C/FFP	Various : Various	262.104	0.000		0.000		0.000		-		0.000	0.000	262.104	262.104
Primary HDW Develop - Batwing Reflector Air to Ground Variant	C/CPIF	Various : Various	0.000	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering NRL	WR	Naval Research Lab : Maryland	12.047	1.800	Nov 2016	1.635	Nov 2017	1.657	Nov 2018	-		1.657	Continuing	Continuing	Continuing
Systems Engineering NAWCAD	WR	NAWCAD : Patuxent River, MD	24.741	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering NAWCWD	WR	NAWCWD : Point Mugu, CA	86.815	4.376	Nov 2016	4.642	Nov 2017	4.758	Nov 2018	-		4.758	Continuing	Continuing	Continuing
Systems Engineering NAWCWD	WR	NAWCWD : China Lake, CA	0.000	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering NSWC	WR	NSWC Det : Crane, IN	10.921	0.625	Nov 2016	0.675	Nov 2017	0.803	Nov 2018	-		0.803	Continuing	Continuing	Continuing
Systems Engineering VAR	WR	Various : Various	14.893	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Prior Year Development cost no longer Funded in the FYDP	Various	Various : Various	1.043	0.000		0.000		0.000		-		0.000	0.000	1.043	1.043
		Subtotal	412.564	6.801		6.952		7.218		-		7.218	Continuing	Continuing	N/A

Remarks

Growth in excess of inflation indices in FY 2018 is due to increased efforts related to flight testing.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support - Jammer Techniques Optimization (JATO)	SS/CPFF	Johns Hopkins Unv : Maryland	39.529	4.878	Nov 2016	4.838	Nov 2017	5.110	Nov 2018	-		5.110	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 0556 / *EW Counter Response*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Eng & Tech Srvc (Non FFRDC)	Various	Various : Various	18.002	1.029	Nov 2016	1.869	Nov 2017	1.896	Nov 2018	-		1.896	Continuing	Continuing	Continuing
Prior year Support costs no longer funded in the FYDP	Various	Various : Various	2.256	0.000		0.000		0.000		-		0.000	0.000	2.256	-
		Subtotal	59.787	5.907		6.707		7.006		-		7.006	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Jammer Techniques Optimization (JATO) Flight Test	WR	NAWCWD : Point Mugu, CA	0.000	0.600	Nov 2016	2.091	Nov 2017	2.122	Nov 2018	-		2.122	Continuing	Continuing	Continuing
JATO Ground/Lab Test	WR	NAWCWD : Point Mugu, CA	0.000	1.700	Nov 2016	0.553	Nov 2017	0.564	Nov 2018	-		0.564	Continuing	Continuing	Continuing
		Subtotal	0.000	2.300		2.644		2.686		-		2.686	Continuing	Continuing	N/A

Remarks

Jammer Techniques Optimization (JATO) Flight and Ground/Lab Tests broken out separately from Systems Engineering efforts for budget clarity in FY 2017. These items fund tests of JATO techniques, tactics, and procedures (TTPs) against real and simulated adversary systems. Late receipt of FY 2017 funding hindered ability to secure Flight Test ranges; Flight Test funds were used to support Ground/Lab test requirements. FY 2018 includes an additional four JATO Flight Tests over budgeted efforts in FY 2017.

Management Services ($ in Millions)

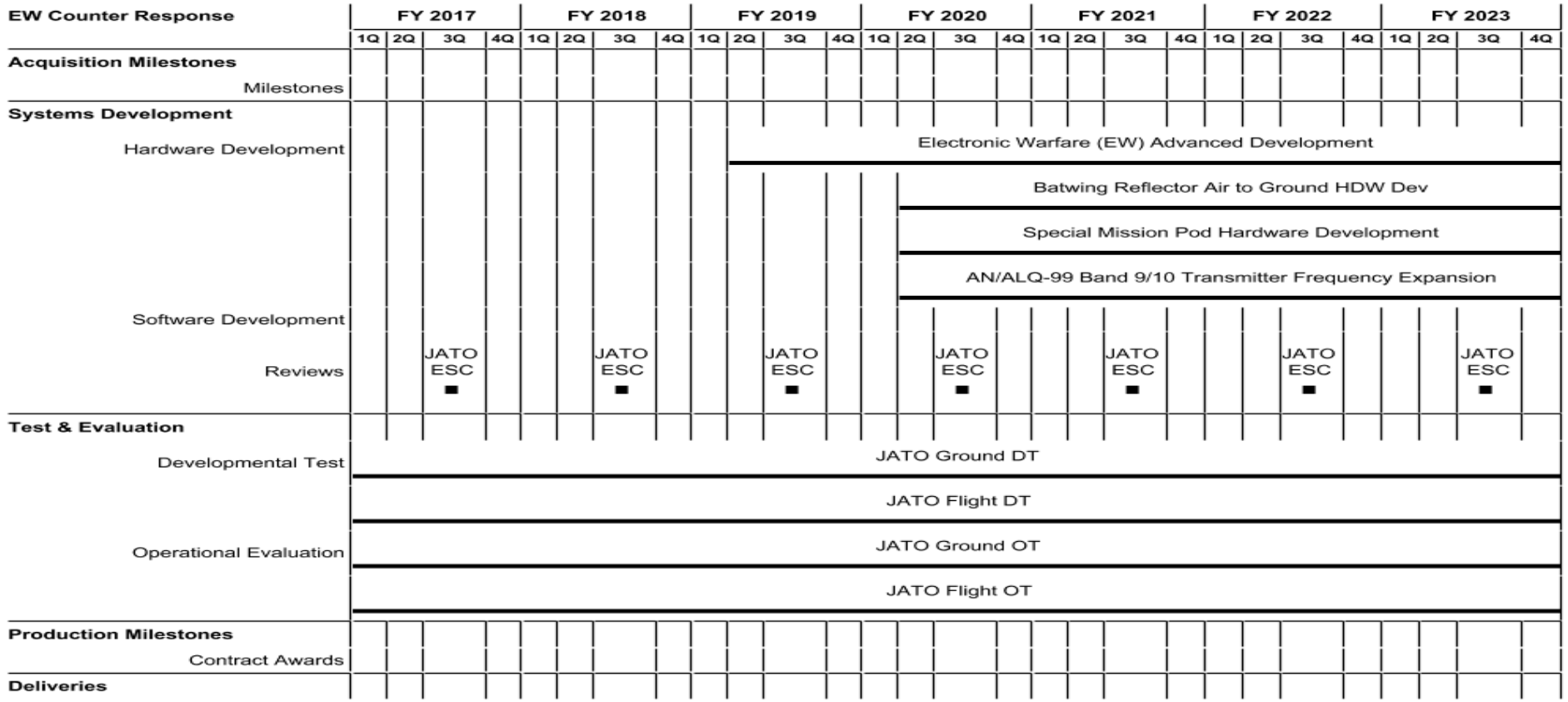
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	Various : Various	1.235	0.030	Oct 2016	0.030	Oct 2017	0.030	Oct 2018	-		0.030	Continuing	Continuing	Continuing
Travel	WR	Various : Various	0.205	0.100	Oct 2016	0.100	Oct 2017	0.100	Oct 2018	-		0.100	Continuing	Continuing	Continuing
		Subtotal	1.440	0.130		0.130		0.130		-		0.130	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / *Electronic Warfare (EW) Dev*	Project (Number/Name) 0556 / *EW Counter Response*	

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	473.791	15.138		16.433		17.040		-		17.040	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 0556 / *EW Counter Response*



2019PB - 0604270N - 0556

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 0556 / *EW Counter Response*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
EW Counter Response				
Systems Development: Hardware Development: Electronic Warfare (EW) Advanced Development	2	2019	4	2023
Systems Development: Hardware Development: Batwing Reflector Air to Ground Hardware Development	2	2020	4	2023
Systems Development: Hardware Development: Special Mission Pod Hardware Development	2	2020	4	2023
Systems Development: Hardware Development: AN/ALQ-99 Band 9/10 Transmitter Frequency Expansion	2	2020	4	2023
Systems Development: Reviews: JATO Executive Steering Committee 2017	3	2017	3	2017
Systems Development: Reviews: JATO Executive Steering Committee 2018	3	2018	3	2018
Systems Development: Reviews: JATO Executive Steering Committee 2019	3	2019	3	2019
Systems Development: Reviews: JATO Executive Steering Committee 2020	3	2020	3	2020
Systems Development: Reviews: JATO Executive Steering Committee 2021	3	2021	3	2021
Systems Development: Reviews: JATO Executive Steering Committee 2022	3	2022	3	2022
Systems Development: Reviews: JATO Executive Steering Committee 2023	3	2023	3	2023
Test & Evaluation: Developmental Test: JATO Ground Developmental Test	1	2017	4	2023
Test & Evaluation: Developmental Test: JATO Flight Developmental Test	1	2017	4	2023
Test & Evaluation: Operational Evaluation: JATO Ground Operational Test	1	2017	4	2023
Test & Evaluation: Operational Evaluation: JATO Flight Operational Test	1	2017	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / *Electronic Warfare (EW) Dev*	Project (Number/Name) 1742 / *EW Technical Development and T&E*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
1742: *EW Technical Development and T&E*	2.682	1.525	1.106	1.833	-	1.833	1.764	1.614	1.650	1.684	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project funds efforts that focus on the quick reaction prototyping of tactical information and electronic warfare systems. This program directly addresses various Fleet requirements across multiple platforms (airborne, surface and subsurface), airborne and surface cryptologic operational requirements documents and the joint oversight council missions needs statement to research, assess, and develop information warfare and electronic warfare systems and capabilities. These systems/ capabilities provide information dominance to friendly forces during conflict, which is necessary for successful mission accomplishment.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Electronic Warfare Technical Development Studies and Test & Evaluation	1.525	1.106	1.833	0.000	1.833
Articles:	-	-	-	-	-
Description: This program element includes development of Electronic Warfare (EW) systems for the United States Navy (USN), United States Marine Corps (USMC), and United States Army tactical aircraft, USMC helicopters, surface combatants, data link vulnerability assessments, precision targeting, USN and USMC radio frequency jammers, and development and testing of electronic warfare devices for emerging threats and emergency contingencies. This program directly addresses various Navy requirements across multiple platforms (airborne, surface and subsurface), airborne and surface cryptologic operational requirements documents and the joint oversight council missions needs statement to research, assess, and develop information warfare and electronic warfare systems and capabilities. These systems/capabilities provide information dominance to friendly forces during conflict, which is necessary for successful mission accomplishment. ***FY 2018 Plans:*** Complete the study of the vulnerability analysis on emerging/changing threats/targets for EW programs. Assess vulnerabilities in adversary systems and signals with the purpose of developing countermeasures to create Commanders desired effects. Realize vulnerability in order to develop and integrate specific wave forms into Maritime Cryptologic Systems (MCS-21).					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 1742 / *EW Technical Development and T&E*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Provide hardware prototyping and testing. Provide support for test plan development, antenna/platform integration, testing, and post-test analyses. ***FY 2019 Base Plans:*** Continue to assess vulnerabilities in adversary systems and signals with the purpose of developing countermeasures to create Commanders desired effects. Continue to realize vulnerability in order to develop and integrate specific wave forms into Maritime Cryptologic Systems (MCS-21). Continue to provide hardware prototyping and testing. Continue to provide support for test plan development, antenna/platform integration, testing, and post-test analyses. Provide Subject Matter Expertise (SME) of Foreign Material Exploitation and reverse engineering efforts to develop and deliver a Cyber capability to EUCOM and CENTCOM AORs. SMEs also conduct high-priority, sole source, signal discovery and technical analysis that supports countermeasure development in EUCOM and PACOM AORs. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase in between FY18 and FY19 supports the delivery of Cyber and Electronic Warfare capabilities specifically for highly classified projects. Funds provide Subject Matter Expertise (SME) of Foreign Material Exploitation and reverse engineering efforts to develop and deliver a Cyber capability to EUCOM and CENTCOM AORs. SMEs also conduct high-priority, sole source, signal discovery and technical analysis that supports countermeasure development in EUCOM and PACOM AORs.					
Accomplishments/Planned Programs Subtotals	1.525	1.106	1.833	0.000	1.833

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Development of classified prototypes and special capabilities. The Navy is granted streamlined acquisition authority for the development of classified prototypes and special capabilities under the DASN (C4I).

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 1742 / *EW Technical Development and T&E*

E. Performance Metrics

Research, assess and develop EW/IW capabilities. The Navy serves as the Program Management Office of the EW Technical Development and Information Warfare (IW) program.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 1742 / *EW Technical Development and T&E*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	C/FP	Navy System Management Activity : JBAB, DC	0.000	0.160	Jan 2017	0.160	Oct 2017	0.160	Oct 2018	-		0.160	Continuing	Continuing	Continuing
Studies & Analysis	Various	Clasified : Various	2.682	1.365	Jan 2017	0.946	Oct 2017	1.673	Oct 2018	-		1.673	0.000	6.666	-
		Subtotal	2.682	1.525		1.106		1.833		-		1.833	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	2.682	1.525		1.106		1.833		-		1.833	Continuing	Continuing	N/A

Remarks

Increase in between FY18 and FY19 supports the delivery of Cyber and Electronic Warfare capabilities specifically for highly classified projects. Funds provide Subject Matter Expertise (SME) of Foreign Material Exploitation and reverse engineering efforts to develop and deliver a Cyber capability to EUCOM and CENTCOM AORs. SMEs also conduct high-priority, sole source, signal discovery and technical analysis that supports countermeasure development in EUCOM and PACOM AORs.

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 1742 / *EW Technical Development and T&E*

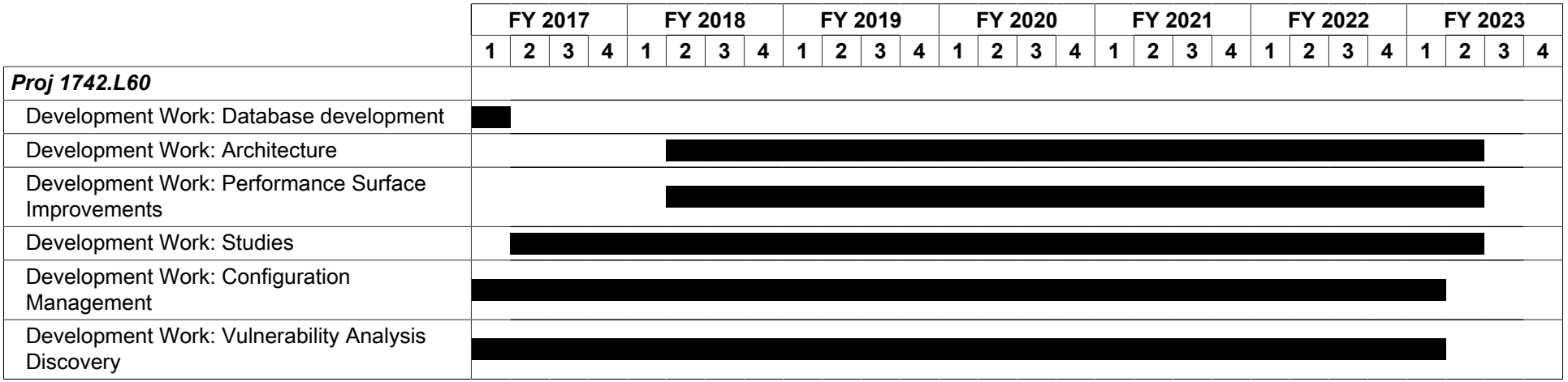


Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 1742 / *EW Technical Development and T&E*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1742.L60				
Development Work: Database development	1	2017	1	2017
Development Work: Architecture	2	2018	2	2023
Development Work: Performance Surface Improvements	2	2018	2	2023
Development Work: Studies	2	2017	2	2023
Development Work: Configuration Management	1	2017	1	2023
Development Work: Vulnerability Analysis Discovery	1	2017	1	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / *Electronic Warfare (EW) Dev*	Project (Number/Name) 2175 / *Tactical Air Electronic Warfare*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
2175: *Tactical Air Electronic Warfare*	488.771	7.015	2.097	45.074	-	45.074	44.582	57.252	70.615	77.543	0.000	792.949
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 418

A. Mission Description and Budget Item Justification

Integrated Defensive Electronic Countermeasures (IDECM) Block 3 (IB-3/ALE-55) introduced the new Fiber Optic Towed Decoy (FOTD), ALE-55, capability to the IDECM Block 2 Electronic Warfare (EW) suite as a replacement for the ALE-50 decoy. The FOTD, when integrated with the rest of the F/A-18E/F EW suite (i.e., ALQ-214, ALR-67(V)3, ALE-47 and ALE-50), the associated cockpit controls, displays and other avionics significantly improves the survivability of the host aircraft in a radio frequency threat environment. IB-3 MS III (Full-Rate Production Decision) was approved in the 4th Qtr. FY 2011. IB-3 Initial Operational Capability (IOC) was achieved 4th Qtr. FY 2011.

IDECM Block 4 (IB-4) is an Engineering Change Proposal (ECP) to the ALQ-214 to render it suitable for operation on F/A-18C/D aircraft (replacing the ALQ-126B and significantly improving F/A-18C/D survivability) while retaining all IDECM suite functionality when installed on F/A-18E/F aircraft. The IB-4 acquisition and contract strategy includes development of the Common On-Board Jammer for the F/A-18 C/D/E/F aircraft through sole source contract awards for modifications to the ALQ-214. IB-4, ALQ-214 ECP efforts include hardware and software design, development and test, delivery of 17 engineering development models, integration and testing on the host aircraft. The F/A-18 EW suite includes the ALR-67 Radar Warning Receiver (RWR), the ALE-47 Countermeasures Dispensing Set (CMDS), the mission computer and other avionics. In addition to performing the RWR function, the ALR-67 is the EW bus controller. The EW bus is the primary interface between the EW systems (Jammer, RWR, and CMDS). The mission computer is the avionics bus controller, the interface between the EW suite and other avionics. IB-4 production Cut-In occurred 2nd Qtr FY 2012, Initial Operational Capability (IOC) achieved May 2015.

ALQ-214 software improvement will provide the ALQ-214 with digital radio frequency memory deny-delay, technique capability significantly improving F/A-18C/D/E/F survivability. Acquisition and contract strategy includes development, integration and test of the ALQ-214 software improvements through sole-source contract award. Modifications to other F/A-18E/F Block II and Block III aircraft avionics may be required in order to develop and integrate this capability. These other avionics may include, but are not limited to, the ALR-67(V)2, ALR-67(V)3, ALE-47, ALE-50, ALE-55, mission computer and fire control radar.

F/A-18 E/F ALQ-214 Adaptive Radar Countermeasures (ARC) will provide the ALQ-214 with improved RF threat detection algorithms and jamming against modern threat radars. Modifications to other F/A-18E/F Block II and Block III aircraft avionics may be required in order to develop and integrate this capability. These other avionics may include, but are not limited to, the ALR-67(V)2, ALR-67(V)3, ALE-47, ALE-50, ALE-55, mission computer and fire control radar.

The Dual Band Decoy (DBD) will provide expanded Radio Frequency (RF) capability against current and emerging modern RF threat radars, significantly improving the survivability of the F/A-18 E/F. DBD will replace the current ALE-55 FOTD when Initial Operational Capability is achieved in FY 2025. Modifications to other F/A-18E/

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 2175 / *Tactical Air Electronic Warfare*

F Block II and Block III aircraft avionics may be required in order to develop and integrate this capability. These other avionics may include, but are not limited to, the ALR-67(V)2, ALR-67(V)3, ALE-47, ALE-50, ALE-55, mission computer and fire control radar.

Project Unit 2175 Tactical Air Electronic Warfare Cost to Complete should read $82.128 Million. Total Cost should read $875.077 Million.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Tactical Air EW	7.015	2.097	45.074	0.000	45.074
Articles:	-	-	-	-	-
FY 2018 Plans: ALQ-214 Software Improvement will complete and field in FY 2018					
FY 2019 Base Plans: IDECM ARC Development, Integration and Test will begin in FY 2019 and continue into FY 2023. Dual Band Decoy (DBD) Development, Integration and Test will begin in FY 2019 and continue through FY 2023.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: Increase of $42.977M due to the Integration of IDECM ARC Development and Dual Band Decoy (DBD) Development. ARC Integration and Test will begin in FY 2019 and continue through FY 2023. DBD Integration and Test will begin in FY 2019 and continue through FY 2023.					
Accomplishments/Planned Programs Subtotals	7.015	2.097	45.074	0.000	45.074

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• APN/0576 004-12: *Common On-Board Jammer*	54.568	49.976	46.854	-	46.854	47.039	48.003	48.952	49.911	90.409	789.230
• PANMC/0182: *Airborne Expendable CM*	20.480	23.534	23.712	-	23.712	24.227	24.632	44.745	46.344	Continuing	Continuing

Remarks

Airborne Expendable Countermeasures funding only includes the Active Jammer ALE-55 Fiber Optic Towed Decoy (FOTD) and associated other support. Per the Acquisition Decision Memorandum dated 18 August 2017, PMA 272 was directed by ASN (RD&A) to remove IDECM Block 2/3 from reporting.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 2175 / *Tactical Air Electronic Warfare*

D. Acquisition Strategy

IB-4 Engineering Change Proposal (ECP) and Software Improvement (SWIP) development contracts were awarded sole-source to Harris in 2009 and 2012 respectively. Harris is the original developer/manufacturer and current sustainer of the ALQ-214. Annual IB-4 production awards are planned through 2025.

ARC development contract is planned as a sole source to Harris beginning in 2019 and continuing into 2023. DBD development contract is planned as a competition, though urgency of need due to emerging threats may necessitate an alternate approach. This development contract is planned for award in 2019 and continuing through 2023.

E. Performance Metrics

IDECM Block 4: ALQ-214 FRP 14-16 contract awarded 4th Qtr. FY 2017. FRP-15 option contract planned for 2nd Qtr. FY 2018. ALQ-214 FRP 14-16 is a Sole Source Firm Fixed Price (SS/FFP) contract with a base plus 2 options to Harris.

ALQ-214 Software Improvement: Successfully achieve Fleet Release in 3rd Qtr. FY 2018.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 2175 / *Tactical Air Electronic Warfare*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aircraft Integration - IDECM Boeing	Various	Various : Various	7.519	0.000		0.000		0.000		-		0.000	0.000	7.519	7.519
Systems Eng - IDECM	SS/CPFF	Various : Various	64.169	0.000		0.000		0.000		-		0.000	0.000	64.169	64.169
Adaptive Radar Countermeasures (ARC) Development	SS/CPFF	Harris : Clifton, NJ	0.000	0.000		0.000		8.487	Dec 2018	-		8.487	67.166	75.653	75.653
Dual Band Decoy Development	TBD	TBD : TBD	0.000	0.000		0.000		26.076	May 2019	-		26.076	88.202	114.278	114.278
Prior Year Prod Dev costs no longer funded in FYDP	Various	Various : Various	236.024	0.000		0.000		0.000		-		0.000	0.000	236.024	-
		Subtotal	307.712	0.000		0.000		34.563		-		34.563	155.368	497.643	N/A

Remarks

ALQ-214 Adaptive Radar Countermeasures (ARC) Development, Integration and Test will begin in FY 2019 and continue into FY 2023. Dual Band Dual Band Decoy Development, Integration and Test will begin in FY 2019 and continue through FY 2023.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Log Supt - IDECM	WR	NAWCAD : Pax River, MD	0.309	0.000		0.114	Nov 2017	0.115	Nov 2018	-		0.115	0.841	1.379	-
Integrated Log Supt - IDECM	SS/CPFF	WYLE : Pax River, MD	0.050	0.000		0.000		0.000		-		0.000	0.000	0.050	0.050
Software Dev-ALQ - 214 SW Dev	SS/CPFF	Harris : Clifton, NJ	26.887	0.988	Aug 2017	0.000		0.000		-		0.000	0.000	27.875	27.875
Engineering Support	WR	Various : Various	2.068	0.250	Dec 2016	1.334	Nov 2017	1.119	Nov 2018	-		1.119	8.155	12.926	-
Engineering Support	WR	NAWCWD : China Lake, CA	0.971	0.000		0.000		0.000		-		0.000	0.000	0.971	-
Engineering Support	WR	NAWCWD : Point Mugu, CA	4.026	0.868	Feb 2017	0.000		0.000		-		0.000	0.000	4.894	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 2175 / *Tactical Air Electronic Warfare*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Studies and Analysis SW Dev	SS/CR	Johns Hopkins : Baltimore, MD	1.473	0.100	Mar 2017	0.000		0.000		-		0.000	0.000	1.573	1.573
Engineering Support ARC	WR	Various : Various	0.000	0.000		0.000		2.551	Nov 2018	-		2.551	21.879	24.430	-
Engineering Support Dual Band Decoy	WR	Various : Various	0.000	0.000		0.000		5.724	Nov 2018	-		5.724	48.547	54.271	-
Prior Year Support costs no longer funded in FYDP	Various	Various : Various	10.307	0.000		0.000		0.000		-		0.000	0.000	10.307	-
		Subtotal	46.091	2.206		1.448		9.509		-		9.509	79.422	138.676	N/A

Remarks

Software Dev - ALQ-214 SW Dev. Software Development challenges required additional funding to complete the effort.
ALQ-214 ARC Development, Integration and Test will begin in FY 2019 and continue into FY 2023.
Dual Band Decoy Development, Integration and Test will begin in FY 2019 and continue through FY 2023.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Dev Test & Eval Supt ALQ-214 SW Imp	WR	Various : Various	0.420	0.000		0.000		0.000		-		0.000	0.000	0.420	-
Integrated Test & Eval ALQ-214 SW Imp	WR	NAWCWD : China Lake, CA	0.952	0.000		0.000		0.000		-		0.000	0.000	0.952	-
Dev Test & Eval Supt ALQ-214 SW Imp	WR	NAWCWD : China Lake, CA	9.573	2.962	Feb 2017	0.000		0.000		-		0.000	0.000	12.535	-
Dev Test & Eval Supt ALQ-214 SW IMP	WR	NAWCWD : Point Mugu, CA	0.854	1.356	Feb 2017	0.000		0.000		-		0.000	0.000	2.210	-
Oper Test & Eval IDECM	WR	NAWCWD : China Lake, CA	2.737	0.000		0.000		0.000		-		0.000	0.000	2.737	-
Eng Test & Eval IDECM	WR	Various : Various	2.611	0.046	Dec 2016	0.434	Nov 2017	0.438	Nov 2018	-		0.438	3.189	6.718	-
Eng & Tech Srvcs (Non-FFRDC)	SS/CPFF	Various : Various	2.043	0.410	Dec 2016	0.153	Dec 2017	0.000		-		0.000	0.500	3.106	3.106
Dev Test & Eval Supt ARC	WR	Various : Various	0.000	0.000		0.000		0.250	Dec 2018	-		0.250	7.379	7.629	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 2175 / *Tactical Air Electronic Warfare*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Test & Eval ARC	WR	Various : Various	0.000	0.000		0.000		0.250	Dec 2018	-		0.250	6.465	6.715	-
Oper Test & Eval ARC	WR	Various : Various	0.000	0.000		0.000		0.000		-		0.000	3.286	3.286	-
Oper Test & Eval ARC (VX-9)	WR	NAWCWD : China Lake, CA	0.000	0.000		0.000		0.000		-		0.000	13.143	13.143	-
Dev Test & Eval Supt Dual Band Decoy	WR	Various : Various	0.000	0.000		0.000		0.000		-		0.000	25.662	25.662	-
Integrated Test & Eval Dual Band Decoy	WR	Various : Various	0.000	0.000		0.000		0.000		-		0.000	12.904	12.904	-
Oper Test & Eval Dual Band Decoy	WR	Various : Various	0.000	0.000		0.000		0.000		-		0.000	11.300	11.300	-
Oper Test & Eval DBD (VX-9)	WR	NAWCWD : China Lake, CA	0.000	0.000		0.000		0.000		-		0.000	13.000	13.000	-
Prior Year T&E costs no longer funded in FYDP	WR	Various : Various	26.007	0.000		0.000		0.000		-		0.000	0.000	26.007	-
		Subtotal	45.197	4.774		0.587		0.938		-		0.938	96.828	148.324	N/A

Remarks

Additional Developmental Test & Evaluation for SWIP support will continue at both China Lake and Point Mugu in FY 2017 and FY 2018.
ALQ-214 ARC Development, Integration and Test will begin in FY 2019 and continue into FY 2023.
Dual Band Decoy Development, Integration and Test will begin in FY 2019 and continue through FY 2023.

Management Services ($ in Millions)

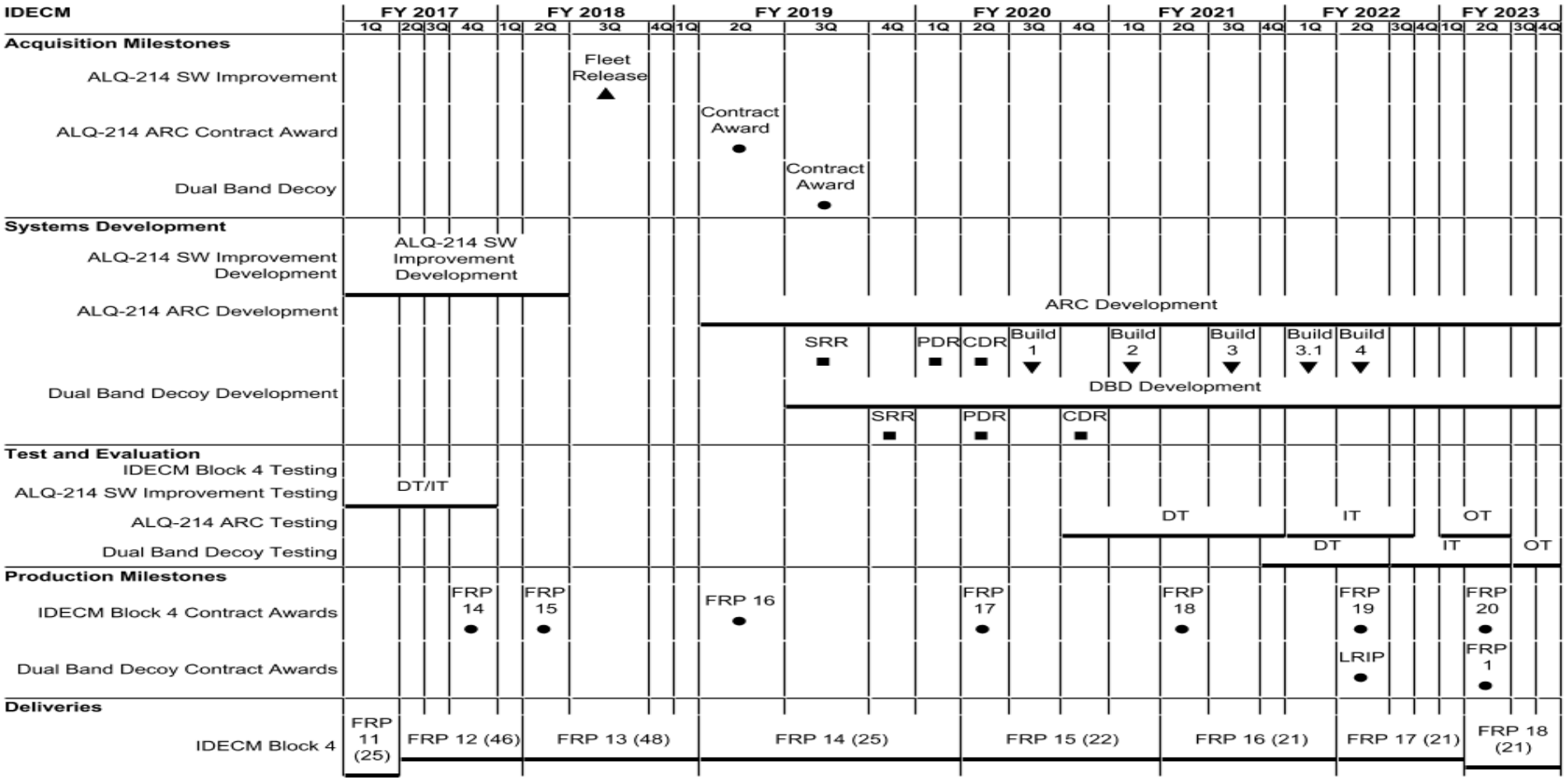
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Allot	NAWCAD : Pax River, MD	0.836	0.035	Oct 2016	0.062	Oct 2017	0.064	Oct 2018	-		0.064	0.502	1.499	-
Prior Year Mgmt costs no longer funded in FYDP	Various	Various : Various	88.935	0.000		0.000		0.000		-		0.000	0.000	88.935	-
		Subtotal	89.771	0.035		0.062		0.064		-		0.064	0.502	90.434	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / *Electronic Warfare (EW) Dev*	Project (Number/Name) 2175 / *Tactical Air Electronic Warfare*	

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	488.771	7.015		2.097		45.074		-		45.074	332.120	875.077	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 2175 / *Tactical Air Electronic Warfare*



2019PB - 0604270N - 2175 IDECM Block 4 is an ECP to Block 2

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 2175 / *Tactical Air Electronic Warfare*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
IDECM				
Acquisition Milestones: ALQ-214 SW Improvement: ALQ-214 SW Improvement Fleet Release	3	2018	3	2018
Acquisition Milestones: ALQ-214 ARC Contract Award: ALQ-214 ARC Contract Award	2	2019	2	2019
Acquisition Milestones: Dual Band Decoy: Dual Band Decoy Contract Award	3	2019	3	2019
Systems Development: ALQ-214 SW Improvement Development: ALQ-214 SW Improvement Development	1	2017	2	2018
Systems Development: ALQ-214 ARC Development: ARC Development	2	2019	4	2023
Systems Development: ALQ-214 ARC Development: ALQ-214 ARC Systems Requirements Review	3	2019	3	2019
Systems Development: ALQ-214 ARC Development: ALQ-214 ARC Preliminary Design Review	1	2020	1	2020
Systems Development: ALQ-214 ARC Development: ALQ-214 ARC Critical Design Review	2	2020	2	2020
Systems Development: ALQ-214 ARC Development: ALQ-214 ARC Build 1	3	2020	3	2020
Systems Development: ALQ-214 ARC Development: ALQ-214 ARC Build 2	1	2021	1	2021
Systems Development: ALQ-214 ARC Development: ALQ-214 ARC Build 3	3	2021	3	2021
Systems Development: ALQ-214 ARC Development: ALQ-214 ARC Build 3.1	1	2022	1	2022
Systems Development: ALQ-214 ARC Development: ALQ-214 ARC Build 4	2	2022	2	2022
Systems Development: Dual Band Decoy Development: DBD Development	3	2019	4	2023
Systems Development: Dual Band Decoy Development: DBD Systems Requirements Review	4	2019	4	2019
Systems Development: Dual Band Decoy Development: DBD Preliminary Design Review	2	2020	2	2020

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 2175 / *Tactical Air Electronic Warfare*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Systems Development: Dual Band Decoy Development: DBD Critical Design Review	4	2020	4	2020
Test and Evaluation: ALQ-214 SW Improvement Testing: ALQ-214 SW Improvement Development Testing (DT)/Integrated Testing (IT)	1	2017	4	2017
Test and Evaluation: ALQ-214 ARC Testing: ALQ-214 ARC Developmental Testing	4	2020	4	2021
Test and Evaluation: ALQ-214 ARC Testing: ALQ-214 ARC Integrated Testing	1	2022	3	2022
Test and Evaluation: ALQ-214 ARC Testing: ALQ-214 ARC Operational Testing	1	2023	2	2023
Test and Evaluation: Dual Band Decoy Testing: DBD Developmental Testing	4	2021	2	2022
Test and Evaluation: Dual Band Decoy Testing: DBD Integrated Testing	3	2022	2	2023
Test and Evaluation: Dual Band Decoy Testing: DBD Operational Testing	3	2023	4	2023
Production Milestones: IDECM Block 4 Contract Awards: IDECM Block 4 Full-Rate Production (FRP) 14	4	2017	4	2017
Production Milestones: IDECM Block 4 Contract Awards: IDECM Block 4 Full-Rate Production (FRP) 15	2	2018	2	2018
Production Milestones: IDECM Block 4 Contract Awards: IDECM Block 4 Full-Rate Production (FRP) 16	2	2019	2	2019
Production Milestones: IDECM Block 4 Contract Awards: IDECM Block 4 Full-Rate Production (FRP) 17	2	2020	2	2020
Production Milestones: IDECM Block 4 Contract Awards: IDECM Block 4 Full-Rate Production (FRP) 18	2	2021	2	2021
Production Milestones: IDECM Block 4 Contract Awards: IDECM Block 4 Full-Rate Production (FRP) 19	2	2022	2	2022
Production Milestones: IDECM Block 4 Contract Awards: IDECM Block 4 Full-Rate Production (FRP) 20	2	2023	2	2023
Production Milestones: Dual Band Decoy Contract Awards: DBD Low Rate Initial Production	2	2022	2	2022
Production Milestones: Dual Band Decoy Contract Awards: DBD Full Rate Production One	2	2023	2	2023
Deliveries: IDECM Block 4: IDECM Block 4 FRP 11 Deliveries (25)	1	2017	1	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 2175 / *Tactical Air Electronic Warfare*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Deliveries: IDECM Block 4: IDECM Block 4 FRP 12 Deliveries (46)	2	2017	1	2018
Deliveries: IDECM Block 4: IDECM Block 4 FRP 13 Deliveries (48)	2	2018	1	2019
Deliveries: IDECM Block 4: IDECM Block 4 FRP 14 Deliveries (25)	2	2019	1	2020
Deliveries: IDECM Block 4: IDECM Block 4 FRP 15 Deliveries (22)	2	2020	1	2021
Deliveries: IDECM Block 4: IDECM Block 4 FRP 16 Deliveries (21)	2	2021	1	2022
Deliveries: IDECM Block 4: IDECM Block 4 FRP 17 Deliveries (21)	2	2022	1	2023
Deliveries: IDECM Block 4: IDECM Block 4 FRP 18 Deliveries (21)	2	2023	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / *Electronic Warfare (EW) Dev*	Project (Number/Name) 3308 / *Technology Development*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3308: *Technology Development*	0.000	0.000	2.286	6.108	-	6.108	6.219	8.476	8.634	8.817	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

PE 0604279N consolidated to PE 0604270N beginning in FY 2017.

A. Mission Description and Budget Item Justification

Project Unit 3308 / Technology Development funds efforts that focus on the quick reaction prototyping and fielding of Tactical Electronic Warfare (EW)/countermeasures solutions for increased survivability providing friendly forces the self-protection necessary for successful mission accomplishment. Significant investments have been made in the modular hardware and reprogrammable software resident in Aircraft Survivability Equipment (ASE)/capability which is fielded today. Technology Development leverages these investments, addressing the effectiveness of ASE systems through technology maturation/insertion, countermeasure/jammer/receiver algorithm development, threat data file and model updates as modern threats continue to evolve. These updated data files and algorithms can be deployed within hours of release by squadron maintenance personnel to aircraft while still on the ramp or flight deck. This program directly addresses the operational requirement of Strike survivability platforms for optimization of EW/countermeasure solutions across the Department of Navy.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Technology Development	0.000	2.286	6.108	0.000	6.108
Articles:	-	-	-	-	-
FY 2018 Plans: Continue EW vulnerability studies/analysis, product development and test conducted for strike aircraft.					
FY 2019 Base Plans: Perform EW vulnerability studies/analysis, product development and test conducted for strike aircraft. Develop, model and test advanced electronic countermeasure algorithms for strike aircraft to defend against modern threats both inside and outside the currently protected RF spectrum.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: Increase of $3.822 Million due to emerging threats outside currently protected RF spectrum. This requires additional algorithms development and testing.					
Accomplishments/Planned Programs Subtotals	0.000	2.286	6.108	0.000	6.108

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3308 / *Technology Development*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Electronic Warfare/vulnerability studies/analysis, product development and test conducted for strike aircraft across the Future Years Defense Program (FYDP).

E. Performance Metrics

Electronic Warfare (EW) vulnerability studies/analysis, product development and test conducted for strike aircraft across the FYDP. Updated Threat Models and Algorithms are released in EW Suite Updates and posted to Naval Data Distribution System (NDDS). Once available on NDDS, Fleet Maintainers download and install the EW Suite to all applicable aircraft.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3308 / *Technology Development*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Dev - ALQ-214 SW Dev	WR	NAWCWD : Point Mugu, CA	0.000	0.000		0.700	Nov 2017	2.931	Nov 2018	-		2.931	Continuing	Continuing	Continuing
Software Dev - ALQ-214 SW Dev	WR	Various : Various	0.000	0.000		0.328	Nov 2017	1.050	Nov 2018	-		1.050	Continuing	Continuing	Continuing
Software Dev - ALQ-214 SW Dev	C/CPFF	Johns Hopkins : Baltimore, MD	0.000	0.000		0.000		0.250	Nov 2018	-		0.250	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		1.028		4.231		-		4.231	Continuing	Continuing	N/A

Remarks

FY 2017 Technology Development unjustified new start. Zero funding received.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering & Evaluation	WR	NAWCWD : Point Mugu, CA	0.000	0.000		0.933	Nov 2017	1.477	Nov 2018	-		1.477	Continuing	Continuing	Continuing
Engineering & Evaluation	WR	Various : Various	0.000	0.000		0.325	Nov 2017	0.400	Nov 2018	-		0.400	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		1.258		1.877		-		1.877	Continuing	Continuing	N/A

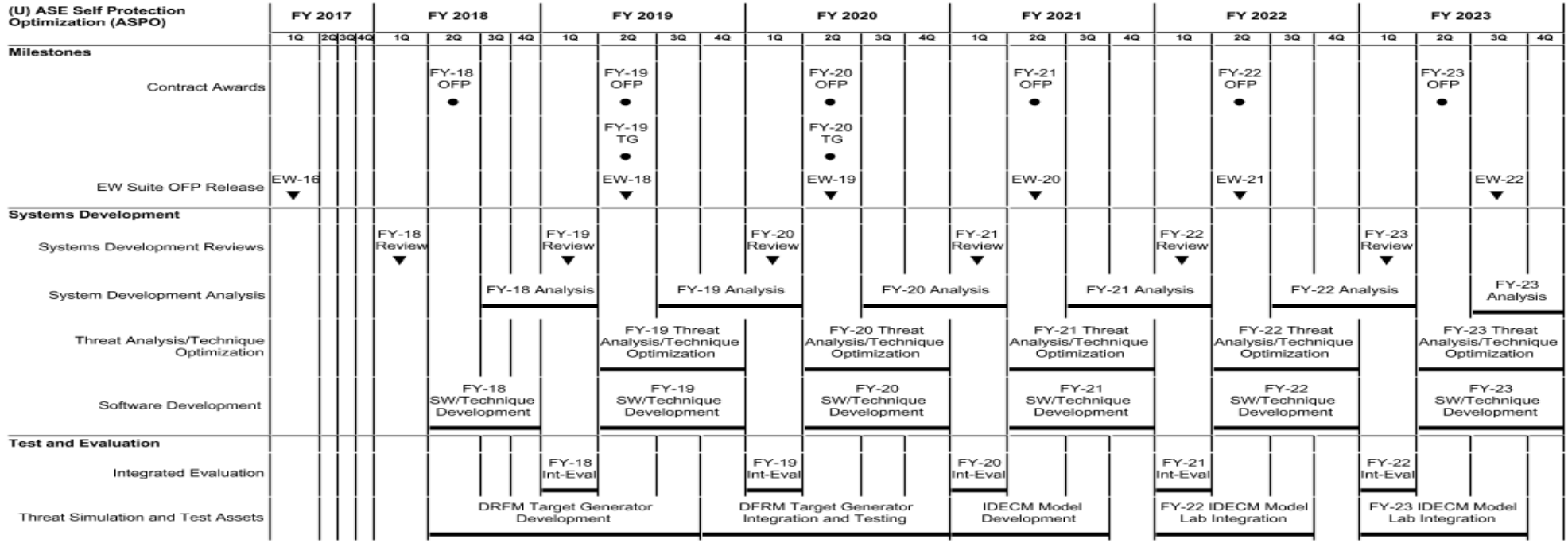
Remarks

FY 2017 Technology Development unjustified new start. Zero funding received.

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		2.286		6.108		-		6.108	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3308 / *Technology Development*



2019PB - 0604270N - 3308

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3308 / *Technology Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
(U) ASE Self Protection Optimization (ASPO)				
Milestones: Contract Awards: FY-18 Operational Flight Program	2	2018	2	2018
Milestones: Contract Awards: FY-19 Operational Flight Program	2	2019	2	2019
Milestones: Contract Awards: FY-20 Operational Flight Program	2	2020	2	2020
Milestones: Contract Awards: FY-21 Operational Flight Program	2	2021	2	2021
Milestones: Contract Awards: FY-22 Operational Flight Program	2	2022	2	2022
Milestones: Contract Awards: FY-23 Operational Flight Program	2	2023	2	2023
Milestones: Contract Awards: FY-19 Target Generator	2	2019	2	2019
Milestones: Contract Awards: FY-20 Target Generator	2	2020	2	2020
Milestones: EW Suite OFP Release: Release-16	1	2017	1	2017
Milestones: EW Suite OFP Release: Release-18	2	2019	2	2019
Milestones: EW Suite OFP Release: Release-19	2	2020	2	2020
Milestones: EW Suite OFP Release: Release-20	2	2021	2	2021
Milestones: EW Suite OFP Release: Release-21	2	2022	2	2022
Milestones: EW Suite OFP Release: Release-22	3	2023	3	2023
Systems Development: Systems Development Reviews: FY-18 Review	1	2018	1	2018
Systems Development: Systems Development Reviews: FY-19 Review	1	2019	1	2019
Systems Development: Systems Development Reviews: FY-20 Review	1	2020	1	2020
Systems Development: Systems Development Reviews: FY-21 Review	1	2021	1	2021
Systems Development: Systems Development Reviews: FY-22 Review	1	2022	1	2022
Systems Development: Systems Development Reviews: FY-23 Review	1	2023	1	2023
Systems Development: System Development Analysis: FY-18 Analysis	3	2018	1	2019

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3308 / *Technology Development*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Systems Development: System Development Analysis: FY-19 Analysis	3	2019	1	2020
Systems Development: System Development Analysis: FY-20 Analysis	3	2020	1	2021
Systems Development: System Development Analysis: FY-21 Analysis	3	2021	1	2022
Systems Development: System Development Analysis: FY-22 Analysis	3	2022	1	2023
Systems Development: System Development Analysis: FY-23 Analysis	3	2023	4	2023
Systems Development: Threat Analysis/Technique Optimization: FY-19 Threat Analysis/Technique Optimization	2	2019	4	2019
Systems Development: Threat Analysis/Technique Optimization: FY-20 Threat Analysis/Technique Optimization	2	2020	4	2020
Systems Development: Threat Analysis/Technique Optimization: FY-21 Threat Analysis/Technique Optimization	2	2021	4	2021
Systems Development: Threat Analysis/Technique Optimization: FY-22 Threat Analysis/Technique Optimization	2	2022	4	2022
Systems Development: Threat Analysis/Technique Optimization: FY-23 Threat Analysis/Technique Optimization	2	2023	4	2023
Systems Development: Software Development: FY-18 SW/Technique Development	2	2018	4	2018
Systems Development: Software Development: FY-19 SW/Technique Development	2	2019	4	2019
Systems Development: Software Development: FY-20 SW/Technique Development	2	2020	4	2020
Systems Development: Software Development: FY-21 SW/Technique Development	2	2021	4	2021
Systems Development: Software Development: FY-22 SW/Technique Development	2	2022	4	2022
Systems Development: Software Development: FY-23 SW/Technique Development	2	2023	4	2023
Test and Evaluation: Integrated Evaluation: FY-18 Integrated Evaluation	1	2019	1	2019
Test and Evaluation: Integrated Evaluation: FY-19 Integrated Evaluation	1	2020	1	2020
Test and Evaluation: Integrated Evaluation: FY-20 Integrated Evaluation	1	2021	1	2021
Test and Evaluation: Integrated Evaluation: FY-21 Integrated Evaluation	1	2022	1	2022
Test and Evaluation: Integrated Evaluation: FY-22 Integrated Evaluation	1	2023	1	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3308 / *Technology Development*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Test and Evaluation: Threat Simulation and Test Assets: Digital Radio Frequency Memory (DFRM) Target Generator Development	2	2018	3	2019
Test and Evaluation: Threat Simulation and Test Assets: DFRM Target Generator Integration and Testing	4	2019	4	2020
Test and Evaluation: Threat Simulation and Test Assets: IDECM Model Development	1	2021	3	2021
Test and Evaluation: Threat Simulation and Test Assets: FY-22 IDECM Model Lab Integration	1	2022	3	2022
Test and Evaluation: Threat Simulation and Test Assets: FY-23 IDECM Model Lab Integration	1	2023	3	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / *Electronic Warfare (EW) Dev*	Project (Number/Name) 3309 / *Assault Survivability Optimization*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3309: *Assault Survivability Optimization*	0.000	3.484	0.851	0.836	-	0.836	0.827	0.850	0.867	0.886	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

PE 0604279N consolidated to PE 0604270N beginning in FY 2017. PE 0604279N PU 3309 All Prior Years is $21.566M.

A. Mission Description and Budget Item Justification

Program was established to fill aircraft survivability gaps against current and future threat systems. This project addresses the Air Expendable Countermeasures (AECM) requirement maintaining a portfolio of countermeasures capable of defeating current and advancing surface-to-air and air-to-air threat missile systems to include the development, testing, and rapid fielding of advanced countermeasures and enhanced employment techniques needed to support operations. Countermeasure dispensing techniques are developed using capability advancements tied to Aircraft Survivability Equipment (ASE) investments already made by sharing sensor data available in the ASE Suite. Improved countermeasure dispense techniques are rapidly delivered to operational Fleet aircraft thru Mission Data File updates via established software update processes. Also, new expendable countermeasure technology developed in industry, by other DoD Components and through other R&D programs can be transitioned to AECM Program of Record meet the required operational platform survivability without further investment in ASE systems. Resources will be applied to the following areas:

1) Studies and evaluations to optimize employment of current countermeasures and ASE capabilities.
2) Development and demonstration of advanced expendable countermeasures and countermeasure techniques.
3) Testing and evaluation of advanced countermeasures.
4) Development of system software enhancements and integration for the testing and deployment of advanced countermeasure techniques.
5) Development of and upgrades to modeling tools and specialized equipment required to conduct evaluation of advanced countermeasures against proliferating threats.

Advanced countermeasures procured in FY 2016 (PE 0604279N) will support flight test for optimized countermeasures tniques in FY 2017.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Assault Survivability Optimization	3.484	0.851	0.836	0.000	0.836
Articles:	480	-	-	-	-
FY 2018 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3309 / *Assault Survivability Optimization*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Continue development and testing of advanced countermeasure techniques and upgrade specialized evaluation equipment for advancing threat systems. Perform modeling and simulation and effectiveness flight testing for MH-60R. ***FY 2019 Base Plans:*** Continue development and testing of advanced countermeasure techniques and upgrade specialized evaluation equipment for advancing threat systems. Perform modeling and simulation and effectiveness flight testing. Aircraft selected for optimization flight testing will be prioritized through coordination with Marine Aviation Weapons and Tactics Squadron (MAWTS). ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** FY 2018 to FY 2019 decrease based on program funding profile established during FY 2015 budget cycle.					
Accomplishments/Planned Programs Subtotals	3.484	0.851	0.836	0.000	0.836

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Acquisition strategy is to leverage improvements in air expendable countermeasures technology and integration of existing Aircraft Survivability Equipment (ASE) sensor data to enhance platform survivability on United States Navy and United States Marine Corps platforms through more effective dispense techniques, investing in enhancements in modeling and simulation tools to better evaluate countermeasure effectiveness, upgrading test and evaluation equipment to incorporate current and future threats for effectiveness tests and developing and demonstrating advanced concept countermeasures for future threats. Advanced countermeasures procured in FY16 will support flight test for optimized/advanced countermeasure techniques in FY17. New advanced countermeasures are then transitioned to the Procurement of Ammunition Navy and Marine Corps appropriation for procurement and fielding. New optimized and advanced countermeasure techniques are delivered to government software support activities for fleet release to increase aircraft/aircrew survivability.

E. Performance Metrics

Maintain AECM ORD: #512-88-89 dated 28 May 1999 requirement to provide operationally effective mixture of countermeasures that can be employed to degrade and/or neutralize the effectiveness of current and projected Electro Optic (EO), Infrared (IR), Radio Frequency (RF) and Ultra-violet (UV) threat missile systems. Continued development of optimized countermeasure techniques and advance countermeasures by on-going analysis and test flight efforts related to aircraft platform survivability

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3309 / *Assault Survivability Optimization*

based on threat development and proliferation. Testing of countermeasure techniques developed for improved survivability is supported by Statement of Functionality for Aircraft Survivability Equipment Smart Dispense, dated 19 January 2012. Project Unit 3309 efforts will continue due to threat proliferation, continued advances in countermeasures technology and fielding of integrated ASE capability advancements within the EO, IR, RF and UV spectrums. Project will include efforts to satisfy Department of Navy aircraft self-protection against Man-Portable Air Defense Systems (MANPADs), including accelerated proliferation of threat addressed in JUONS #SO-0010.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3309 / *Assault Survivability Optimization*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Expendable Countermeasure Technique Modeling and Simulation	WR	NSWC Crane : Crane, IN	0.000	0.773	Oct 2016	0.397	Oct 2017	0.404	Oct 2018	-		0.404	Continuing	Continuing	Continuing
Radio Frequency Countermeasures Modeling and Simulation	WR	NSWC Crane : Crane, IN	0.000	0.519	Oct 2016	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Radio Frequency Countermeasures Modeling and Simulation	C/CPFF	Booz Allen Hamiliton : McClean, VA	0.000	0.114	Mar 2017	0.000		0.000		-		0.000	0.000	0.114	0.114
Radio Frequency Countermeasures Modeling and Simulation	C/CPFF	Georgia Tech Research Institute : Atlanta, GA	0.000	0.080	Jun 2017	0.000		0.000		-		0.000	0.000	0.080	0.079
1x1x8 Expendable Countermeasure Technique Modeling and Simulation	WR	NSWC Crane : Crane, IN	0.000	0.070	Sep 2017	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	0.000	1.556		0.397		0.404		-		0.404	Continuing	Continuing	N/A

Remarks

Modeling and simulation funding supports the development of advanced countermeasure techniques prior to flight test. Initiated modeling and simulation to determine applicability of 1x1x8 countermeasures on MH-60. PE 0604279N PU 3309 Product Development All Prior Years is $9.886M

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Mission Data File Software Development	WR	FRCSE : Jacksonville, FL	0.000	0.240	Nov 2016	0.070	Jan 2018	0.071	Dec 2018	-		0.071	Continuing	Continuing	Continuing
		Subtotal	0.000	0.240		0.070		0.071		-		0.071	Continuing	Continuing	N/A

Remarks

Software development funding supports the creation of Mission Data Files (MDF) and enhanced operational flight program algorithms for flight effectiveness testing. PE 0604279N PU 3309 Support All Prior Years is $4.032M

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3309 / *Assault Survivability Optimization*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental T&E Flight Tests	WR	Various : Various	0.000	0.679	Apr 2017	0.272	Jun 2018	0.271	Mar 2019	-		0.271	Continuing	Continuing	Continuing
Advanced Countermeasures for Flight Tests	MIPR	Alloy Services Company Inc : Chester Township, PA	0.000	0.185	Mar 2017	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Seeker Test Van Advanced Threat Capability	MIPR	Green Mountain Research : Huntsville, AL	0.000	0.261	Jan 2017	0.000		0.000		-		0.000	0.000	0.261	0.261
Engineering, Evaluation and Testing for Advanced Countermeasures	WR	NSWC Crane : Crane, IN	0.000	0.252	Jan 2017	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
1x1x8 Engineering and Evaluaion	WR	NSWC Crane : Crane, IN	0.000	0.070	Sep 2017	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
1x1x8 Engineering and Evaluaion	C/CPFF	Georgia Tech Research Institute : Atlanta, GA	0.000	0.139	Jan 2018	0.012	Mar 2018	0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	0.000	1.586		0.284		0.271		-		0.271	Continuing	Continuing	N/A

Remarks

Advanced expendable countermeasures procured in FY 2017 will support flight effectiveness testing /optimization flight tests in FY 2018. Developmental T&E flight test following modeling and simulation evaluation in FY 2018 will optimize expendable countermeasure effectiveness for MH-60R aircraft using 480 test articles procured in FY 2017. Developmental T&E flight test following modeling and simulation evaluation in FY 2019 will optimize expendable countermeasure effectiveness for aircraft using countermeasures received via non-combat expenditure allocation. Aircraft will be identified via coordination with Marine Aviation Weapons and Tactics Squadron (MAWTS). Initiated engineering and evaluation to determine applicability of 1x1x8 countermeasures on Navy aircraft platforms. PE 0604279N PU 3309 Test and Evaluation All Prior Years is $7.548M

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Management	WR	FRCSE : Jacksonville, FL	0.000	0.102	Oct 2016	0.100	Oct 2017	0.090	Oct 2018	-		0.090	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3309 / *Assault Survivability Optimization*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			0.000	0.102		0.100		0.090		-		0.090	Continuing	Continuing	N/A

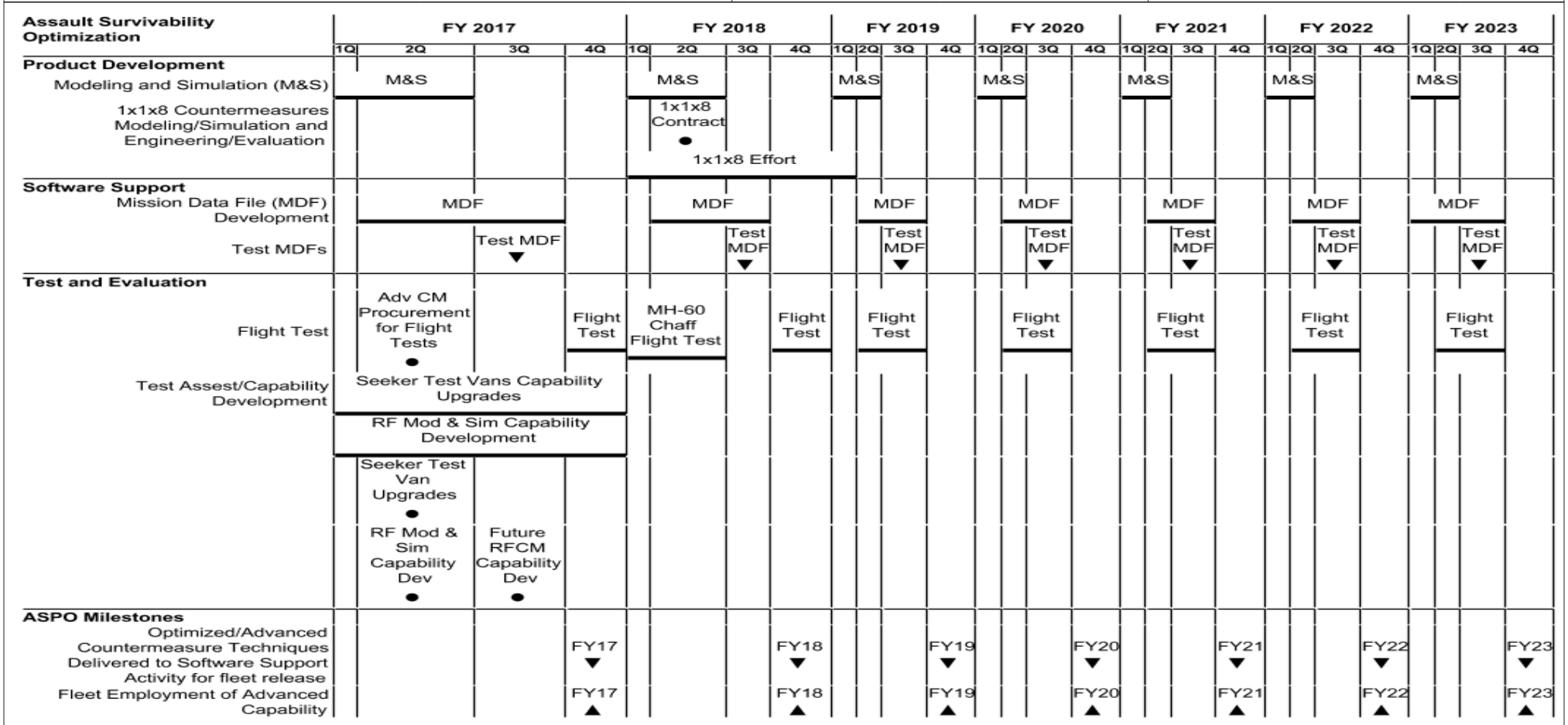
Remarks

Project management required to coordinate increased development activities. PE 0604279N PU 3309 Management Services All Prior Years is $0.100M

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	3.484		0.851		0.836		-		0.836	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3309 / *Assault Survivability Optimization*



2019PB - 0604270N - 3309 Project 3309 moved from PE 0604279N to PE 0604270N in FY 2017

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3309 / *Assault Survivability Optimization*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Assault Survivability Optimization				
Product Development: Modeling and Simulation (M&S): FY17 Modeling and Simulation	1	2017	2	2017
Product Development: Modeling and Simulation (M&S): FY18 Modeling and Simulation	1	2018	2	2018
Product Development: Modeling and Simulation (M&S): FY19 Modeling and Simulation	1	2019	2	2019
Product Development: Modeling and Simulation (M&S): FY20 Modeling and Simulation	1	2020	2	2020
Product Development: Modeling and Simulation (M&S): FY21 Modeling and Simulation	1	2021	2	2021
Product Development: Modeling and Simulation (M&S): FY22 Modeling and Simulation	1	2022	2	2022
Product Development: Modeling and Simulation (M&S): FY23 Modeling and Simulation	1	2023	2	2023
Product Development: 1x1x8 Countermeasures Modeling/Simulation and Engineering/ Evaluation: 1x1x8 Countermeasures Modeling/Simulation and Engineering/Evaluation Contract Award	2	2018	2	2018
Product Development: 1x1x8 Countermeasures Modeling/Simulation and Engineering/ Evaluation: 1x1x8 Countermeasures Modeling/Simulation and Engineering/Evaluation	1	2018	1	2019
Software Support: Mission Data File (MDF) Development: FY17 Mission Data Files Development	2	2017	3	2017
Software Support: Mission Data File (MDF) Development: FY18 Mission Data Files Development	2	2018	3	2018
Software Support: Mission Data File (MDF) Development: FY19 Mission Data Files Development	2	2019	3	2019
Software Support: Mission Data File (MDF) Development: FY20 Mission Data Files Development	2	2020	3	2020
Software Support: Mission Data File (MDF) Development: FY21 Mission Data Files Development	2	2021	3	2021

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3309 / *Assault Survivability Optimization*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Software Support: Mission Data File (MDF) Development: FY22 Mission Data Files Development	2	2022	3	2022
Software Support: Mission Data File (MDF) Development: FY23 Mission Data Files Development	1	2023	3	2023
Software Support: Test MDFs: FY17 Test Mission Data Files	3	2017	3	2017
Software Support: Test MDFs: FY18 Test Mission Data Files	3	2018	3	2018
Software Support: Test MDFs: FY19 Test Mission Data Files	3	2019	3	2019
Software Support: Test MDFs: FY20 Test Mission Data Files	3	2020	3	2020
Software Support: Test MDFs: FY21 Test Mission Data Files	3	2021	3	2021
Software Support: Test MDFs: FY22 Test Mission Data Files	3	2022	3	2022
Software Support: Test MDFs: FY23 Test Mission Data Files	3	2023	3	2023
Test and Evaluation: Flight Test: Advanced Countermeasure Procurement for Flight Tests	2	2017	2	2017
Test and Evaluation: Flight Test: FY17 Flight Test	4	2017	4	2017
Test and Evaluation: Flight Test: FY18 Flight Test	4	2018	4	2018
Test and Evaluation: Flight Test: Advanced Chaff Flight Test	1	2018	2	2018
Test and Evaluation: Flight Test: FY19 Flight Test	2	2019	3	2019
Test and Evaluation: Flight Test: FY20 Flight Test	2	2020	3	2020
Test and Evaluation: Flight Test: FY21 Flight Test	2	2021	3	2021
Test and Evaluation: Flight Test: FY22 Flight Test	2	2022	3	2022
Test and Evaluation: Flight Test: FY23 Flight Test	2	2023	3	2023
Test and Evaluation: Test Assest/Capability Development: Seeker Test Vans Capability Upgrades	1	2017	4	2017
Test and Evaluation: Test Assest/Capability Development: RF Mod & Sim Capability Development	1	2017	4	2017
Test and Evaluation: Test Assest/Capability Development: FY17 Seeker Test Van Upgrade Contract Award	2	2017	2	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3309 / *Assault Survivability Optimization*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Test and Evaluation: Test Assest/Capability Development: RF Mod & Sim Capability Development Contract Award, Booz Allen Hamilton	2	2017	2	2017
Test and Evaluation: Test Assest/Capability Development: Future RFCM capabilities development Contract Award, Georgia Tech Research Institute	3	2017	3	2017
ASPO Milestones: Optimized/Advanced Countermeasure Techniques Delivered to Software Support Activity for fleet release: FY17 Optimized/Advanced CM Techniques Delivered to SSA for fleet release	4	2017	4	2017
ASPO Milestones: Optimized/Advanced Countermeasure Techniques Delivered to Software Support Activity for fleet release: FY18 Optimized/Advanced CM Techniques Delivered to SSA for fleet release	4	2018	4	2018
ASPO Milestones: Optimized/Advanced Countermeasure Techniques Delivered to Software Support Activity for fleet release: FY19 Optimized/Advanced CM Techniques Delivered to SSA for fleet release	4	2019	4	2019
ASPO Milestones: Optimized/Advanced Countermeasure Techniques Delivered to Software Support Activity for fleet release: FY 20 Optimized/Advanced CM Techniques Delivered to SSA for fleet release	4	2020	4	2020
ASPO Milestones: Optimized/Advanced Countermeasure Techniques Delivered to Software Support Activity for fleet release: FY 21 Optimized/Advanced CM Techniques Delivered to SSA for fleet release	4	2021	4	2021
ASPO Milestones: Optimized/Advanced Countermeasure Techniques Delivered to Software Support Activity for fleet release: FY 22 Optimized/Advanced CM Techniques Delivered to SSA for fleet release	4	2022	4	2022
ASPO Milestones: Optimized/Advanced Countermeasure Techniques Delivered to Software Support Activity for fleet release: FY 23 Optimized/Advanced CM Techniques Delivered to SSA for fleet release	4	2023	4	2023
ASPO Milestones: Fleet Employment of Advanced Capability: FY17 Fleet Employment of Advanced Capability	4	2017	4	2017
ASPO Milestones: Fleet Employment of Advanced Capability: FY18 Fleet Employment of Advanced Capability	4	2018	4	2018

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3309 / *Assault Survivability Optimization*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
ASPO Milestones: Fleet Employment of Advanced Capability: FY19 Fleet Employment of Advanced Capability	4	2019	4	2019
ASPO Milestones: Fleet Employment of Advanced Capability: FY20 Fleet Employment of Advanced Capability	4	2020	4	2020
ASPO Milestones: Fleet Employment of Advanced Capability: FY21 Fleet Employment of Advanced Capability	4	2021	4	2021
ASPO Milestones: Fleet Employment of Advanced Capability: FY22 Fleet Employment of Advanced Capability	4	2022	4	2022
ASPO Milestones: Fleet Employment of Advanced Capability: FY23 Fleet Employment of Advanced Capability	4	2023	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / *Electronic Warfare (EW) Dev*	Project (Number/Name) 3327 / *MAGTF EW Aviation Development*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3327: *MAGTF EW Aviation Development*	0.000	16.115	29.643	18.562	-	18.562	13.272	4.849	4.606	14.494	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

PE 0604376M was consolidated to PE 0604270N beginning in FY 2017.

A. Mission Description and Budget Item Justification

This project unit supports the United States Marine Corps (USMC) development of Marine Air Ground Task Force (MAGTF) Electronic Warfare (EW) and the various elements of its distributed System of Systems (SoS) that support the Commandant of the Marine Corps' Strategy and Vision 2025 and Joint Vision 2025. The SoS will address MAGTF EW sufficiency gaps in the areas of Electronic Attack (EA), EW Support (ES), and Electronic Protection with a multitude of payloads designed for carriage on a variety of organic MAGTF air and ground assets. Payload development plans follow an adaptable, modular and open architecture philosophy to combat the increasing capability gap and enable future growth at a reduced operational and sustainment cost. A key element to this capability is the AN/ALQ-231 Intrepid Tiger II program.

The AN/ALQ-231(V)1 pod is the Fixed-Wing variant of the Intrepid Tiger II pod flown on the AV-8B and F/A-18A-D platforms, with plans for future integration on MV-22, C-130, and CH-53K platforms. The AN/ALQ-231(V)2 will be the variant of the Intrepid Tiger II pod flown on unmanned aerial vehicle (UAV) platforms once integration is complete. The AN/ALQ-231(V)3 is the Rotary-Wing variant of the Intrepid Tiger II pod flown on the UH-1Y platform, with plans for future integration on AH-1 platforms. Beginning in FY18, MAGTF EW will also commence efforts to develop an EW Payload for USMC Unmanned Aircraft System (UAS) platforms capable of conducting, supporting, and coordinating Electro-Magnetic Spectrum (EMS) operations in the form of EA and ES against Irregular Warfare threats. Additionally, this payload will be scalable and adaptable for emerging threats and will be interoperable with the USMC's Electronic Warfare Services Architecture (EWSA). This new capability will be integrated for MAGTF tactical coordination of cyberspace and EW operations via the Cyber Electronic Warfare Coordination Cell (CEWCC). Host platforms include, but are not limited to, the RQ-21A.

The FY 2019 funding request was reduced by $2.668 million to account for the availability of prior year execution balances.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Intrepid Tiger II (AN/ALQ-231)	16.115	21.143	9.797	0.000	9.797
Articles:	-	-	-	-	-
FY 2018 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3327 / *MAGTF EW Aviation Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Continuing efforts include develop and test of Intrepid Tiger II based solutions to radar threats in support of the AN/ALQ-231(V)1 BLK X Radar Jammer payload for use on the MV-22, AV-8B, and F/A-18C/D platforms, with compatibility for follow-on integration on C-130 and CH-53K. Updates to major components of the AN/ALQ-231 to address this new threat set commenced in FY 2017. FY 2018 efforts will include competitive prototyping and lab and ground developmental testing of evaluated technologies leading to the down-select of a single Engineering Development Model (EDM) functional design for Critical Design Review (CDR) for both a modular pod shell and a cabin rack-mounted solution. Following CDR, efforts will focus on integrated developmental testing of the cabin rack-mounted solution for the MV-22. The program will continue software development efforts that commenced in FY 2017. Additionally, development of the EWSA in support of increased Intrepid Tiger II targets and missions continues in FY 2018. ***FY 2019 Base Plans:*** The program will continue efforts to develop, mature, and test Intrepid Tiger II based solutions to radar threats in support of the penetrating jammer mission with plans to release variants of the AN/ALQ-231(V)1 BLK X Radar Jammer for use on the MV-22, AV-8B, and F/A-18C/D platforms, as well as for future use on the C-130 and CH-53K. FY 2019 efforts will include the continued maturation of BLK X EDM design for both a modular pod shell and a cabin rack-mounted solution and the correction of developmental test deficiencies. In addition, integrated developmental testing of the rack-mounted solution for the MV-22 will be completed and Operational Testing (OT) will commence. The program will also finalize BLK X software development efforts to support OT. Additionally, development of the EWSA in support of evolving Intrepid Tiger II target sets and missions shall continue in FY 2019. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease from FY 2018 to FY 2019 due to ramp down of AN/ALQ-231(V)1 BLK X Radar Jammer hardware development as the program continues developmental testing and begins operational test in 2QFY19.					
Title: Unmanned Aircraft System (UAS) Electronic Warfare (EW) Payload	0.000	6.000	6.214	0.000	6.214
Articles:	-	-	-	-	-
FY 2018 Plans: Efforts commencing to develop an EW Payload for USMC UAS platforms. Platforms include, but are not limited to, the RQ-21A. This project will result in an EW payload capable of conducting, supporting, and coordinating EMS operations in the form of electronic attack and electronic surveillance against Irregular Warfare threats.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3327 / *MAGTF EW Aviation Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
This payload will be scalable and adaptable for emerging threats and will be interoperable with the USMC's EWSA. This new capability will be integrated for MAGTF tactical coordination of cyberspace and EW operations via the Cyber CEWCC. ***FY 2019 Base Plans:*** Efforts will continue to develop and test an EW Payload for USMC UAS platforms. Platforms include, but are not limited to, the RQ-21A. This project will result in an EW payload capable of conducting, supporting, and coordinating EMS operations in the form of electronic attack and electronic surveillance against Irregular Warfare threats. This payload will be scalable and adaptable for emerging threats and will be interoperable with the USMC's EWSA. This capability will be integrated for MAGTF tactical coordination of cyberspace and EW operations via the Cyber CEWCC. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase from FY 2018 to FY 2019 due to UAS EW payload hardware and software development and Ground Control Station software update beginning 4QFY19.					
Title: MAGTF EW Jammer Techniques Development	0.000	2.500	2.551	0.000	2.551
Articles:	-	-	-	-	-
FY 2018 Plans: FY 2018 funding increases the Marine Corps' cyberspace and Electronic Warfare expertise via the development of new and updated jammer techniques. These techniques will be designed to exploit the interrelated cyberspace domain and the electromagnetic spectrum (EMS) through the development, validation, and delivery of MAGTF EW-specific Tactics, Techniques, and Procedures (TTPs) and testing of MAGTF EW systems against existing and emerging threats. Additional efforts include the acquisition of simulators to better emulate threshold and objective threats for MAGTF EW systems. ***FY 2019 Base Plans:*** FY 2019 will continue efforts to significantly increase the Marine Corps' cyberspace and Electronic Warfare expertise via the development of new and updated jammer techniques. These techniques will be designed to exploit the interrelated cyberspace domain and the electromagnetic spectrum (EMS) through the development, validation, and delivery of MAGTF EW-specific Tactics, Techniques, and Procedures (TTPs) and testing					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3327 / *MAGTF EW Aviation Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
of MAGTF EW systems against existing and emerging threats. Additional efforts include the acquisition of simulators to better emulate threshold and objective threats for MAGTF EW systems. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase from FY 2018 to FY 2019 due to inflation rate adjustments in MAGTF EW Jammer Techniques Development.					
Accomplishments/Planned Programs Subtotals	16.115	29.643	18.562	0.000	18.562

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• APN/0587: *MAGTF EW For Aviation*	20.544	10.111	11.590	-	11.590	41.230	30.959	33.656	24.428	129.667	398.662

Remarks

D. Acquisition Strategy

This project unit is part of USMC led efforts to ensure Marine Corps requirements are included in the budget process for the Future Year Defense Program and beyond. These efforts include AN/ALQ-231 Intrepid Tiger II(V)1, Intrepid Tiger II(V)2, Intrepid Tiger II(V)3, Collaborative Electronic Warfare (EW)/EW Battle Management, EW Payload, and EW Service Architecture. These programs are the Marine Corps' initial steps to create systems to distribute EW capability across the battle space.

E. Performance Metrics

Continuation of research into Engineering Change Proposals (ECPs) for capability upgrades for AN/ALQ-231(V)1 and AN/ALQ-231(V)3 Intrepid Tiger II pods. Commencement of research to develop an EW payload for USMC Unmanned Aircraft Systems.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3327 / *MAGTF EW Aviation Development*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Intrepid Tiger BLK X Hardware Development	WR	NAWCWD : Point Mugu, CA	0.000	4.525	Jan 2017	10.000	Dec 2017	0.965	Nov 2018	-		0.965	Continuing	Continuing	Continuing
UAS EW Payload Hardware Development	WR	NAWCWD : Point Mugu, CA	0.000	0.000		2.548	Mar 2018	1.712	Nov 2018	-		1.712	Continuing	Continuing	Continuing
UAS EW Payload Software Development	WR	NAWCWD : Point Mugu, CA	0.000	0.000		1.323	Mar 2018	1.932	Nov 2018	-		1.932	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCAD : Patuxent River, MD	0.000	0.539	Oct 2016	1.805	Dec 2017	0.858	Nov 2018	-		0.858	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCWD : Point Mugu, CA	0.000	9.227	Jan 2017	9.449	Dec 2017	7.003	Nov 2018	-		7.003	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC : Crane, IN	0.000	0.000		0.050	Feb 2018	0.052	Nov 2018	-		0.052	Continuing	Continuing	Continuing
Systems Engineering	WR	NRL : Washington, DC	0.000	0.000		0.250	Feb 2018	0.255	Nov 2018	-		0.255	Continuing	Continuing	Continuing
		Subtotal	0.000	14.291		25.425		12.777		-		12.777	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support - Jammer Techniques Development	SS/CPFF	Johns Hopkins University : Maryland	0.000	0.000		0.500	Feb 2018	0.511	Dec 2018	-		0.511	0.000	1.011	1.011
Development Support	Various	Various : Various	0.000	0.000		0.617	Feb 2018	0.634	Nov 2018	-		0.634	Continuing	Continuing	Continuing
Eng & Tech Services	Various	Various : Various	0.000	0.374	Nov 2016	0.330	Feb 2018	0.337	Nov 2018	-		0.337	Continuing	Continuing	Continuing
		Subtotal	0.000	0.374		1.447		1.482		-		1.482	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3327 / *MAGTF EW Aviation Development*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Intrepid Tiger BLK X Flight Testing	WR	NAWCAD : Patuxent River, MD	0.000	0.612	Jan 2017	0.000		0.159	Nov 2018	-		0.159	Continuing	Continuing	Continuing
Intrepid Tiger BLK X Flight Testing	WR	NAWCWD : China Lake, CA	0.000	0.000		1.235	Feb 2018	3.040	Nov 2018	-		3.040	Continuing	Continuing	Continuing
Intrepid Tiger BLK X Flight Testing	WR	NAWCWD : Point Mugu, CA	0.000	0.000		1.500	Dec 2017	1.068	Nov 2018	-		1.068	Continuing	Continuing	Continuing
Intrepid Tiger BLK X Testing	WR	NAWCWD : Point Mugu, CA	0.000	0.803	Jan 2017	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	0.000	1.415		2.735		4.267		-		4.267	Continuing	Continuing	N/A

Remarks

Growth in Test & Evaluation between FY 2018 and FY 2019 is due to continued AN/ALQ-231(V)1 BLK X DT and beginning OT.

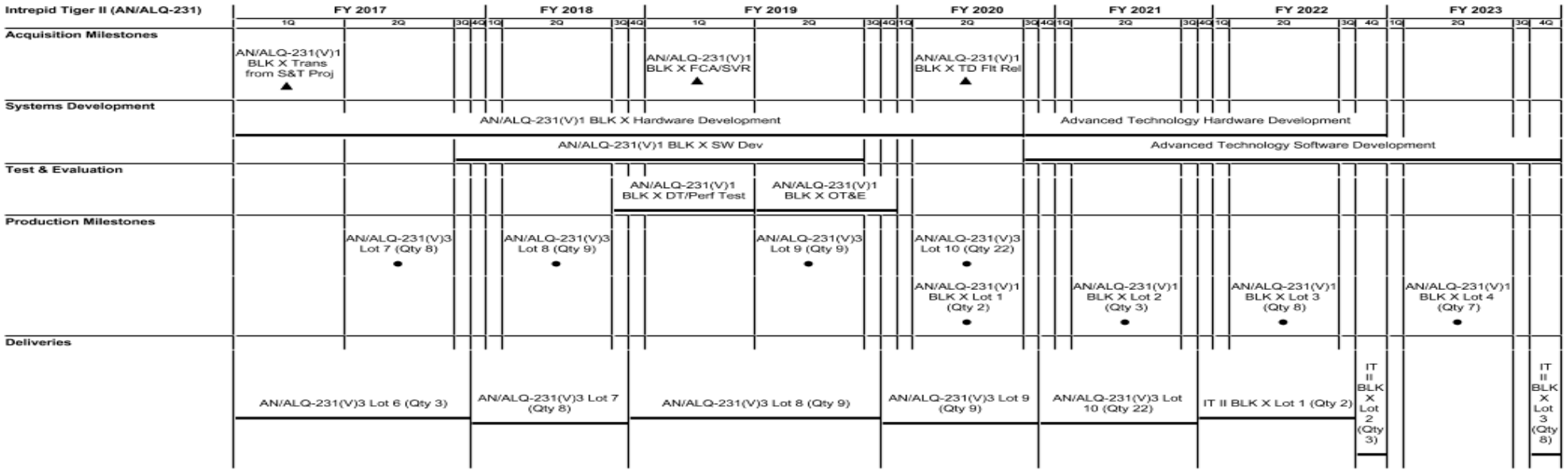
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Various	Various : Various	0.000	0.035	Oct 2016	0.036	Feb 2018	0.036	Oct 2018	-		0.036	Continuing	Continuing	Continuing
		Subtotal	0.000	0.035		0.036		0.036		-		0.036	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	16.115		29.643		18.562		-		18.562	Continuing	Continuing	N/A

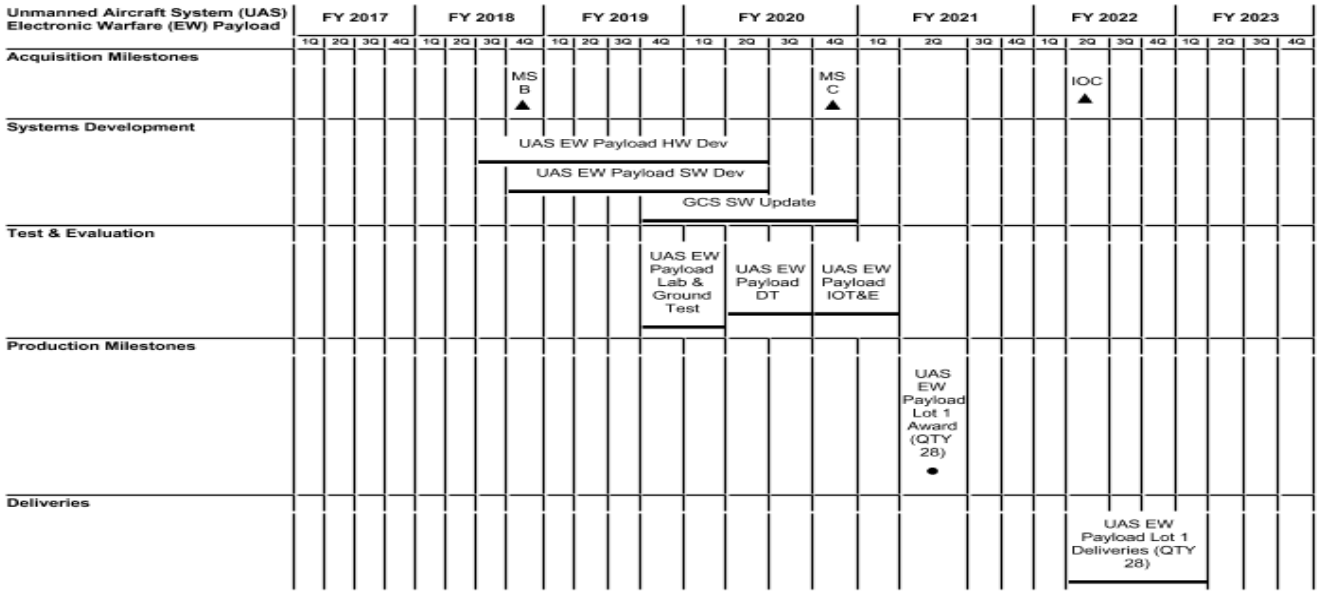
Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3327 / *MAGTF EW Aviation Development*



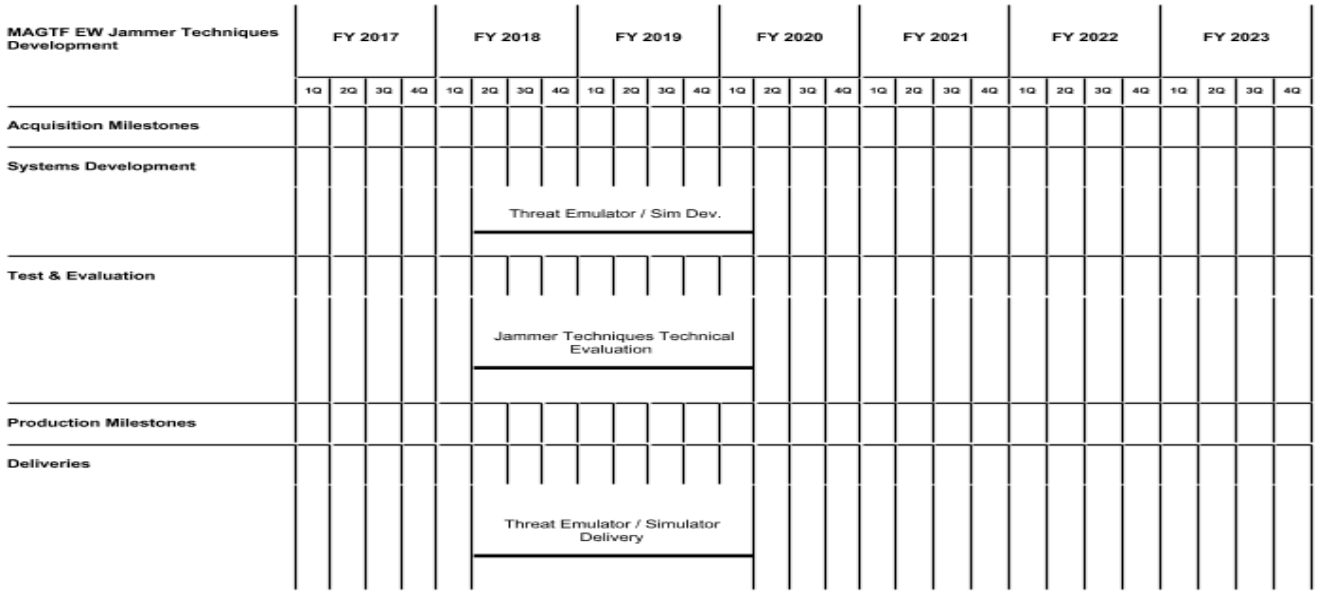
2019PB - 0604270N - 3327 AN/ALQ-231(V)1 BLK X abbreviated to IT II BLK X due to space constraints

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3327 / *MAGTF EW Aviation Development*



2019PB - 0604270N - 3327

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3327 / *MAGTF EW Aviation Development*



2019PB - 0604270N - 3327

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3327 / *MAGTF EW Aviation Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Intrepid Tiger II (AN/ALQ-231)				
Acquisition Milestones: AN/ALQ-231(V)1 BLK X Transition from S&T project	1	2017	1	2017
Acquisition Milestones: AN/ALQ-231(V)1 BLK X Functional Configuration Audit / System Verification Review	1	2019	1	2019
Acquisition Milestones: AN/ALQ-231(V)1 BLK X TD Fleet Release	2	2020	2	2020
Systems Development: AN/ALQ-231(V)1 BLK X Hardware Development	1	2017	2	2020
Systems Development: Advanced Technology Hardware Development	3	2020	4	2022
Systems Development: AN/ALQ-231(V)1 BLK X Software Development	3	2017	2	2019
Systems Development: Advanced Technology Software Development	3	2020	4	2023
Test & Evaluation: AN/ALQ-231(V)1 BLK X Developmental/Performance Test	3	2018	1	2019
Test & Evaluation: AN/ALQ-231(V)1 BLK X OT&E	2	2019	4	2019
Production Milestones: AN/ALQ-231(V)3 Production Lot 7 (Qty 8)	2	2017	2	2017
Production Milestones: AN/ALQ-231(V)3 Production Lot 8 (Qty 9)	2	2018	2	2018
Production Milestones: AN/ALQ-231(V)3 Production Lot 9 (Qty 9)	2	2019	2	2019
Production Milestones: AN/ALQ-231(V)3 Production Lot 10 (Qty 22)	2	2020	2	2020
Production Milestones: AN/ALQ-231(V)1 BLK X Production Lot 1 (2 units)	2	2020	2	2020
Production Milestones: AN/ALQ-231(V)1 BLK X Production Lot 2 (3 units)	2	2021	2	2021
Production Milestones: AN/ALQ-231(V)1 BLK X Production Lot 3 (8 units)	2	2022	2	2022
Production Milestones: AN/ALQ-231(V)1 BLK X Production Lot 4 (7 units)	2	2023	2	2023
Deliveries: AN/ALQ-231(V)3 Lot 6 Deliveries (Qty 3)	1	2017	3	2017
Deliveries: AN/ALQ-231(V)3 Lot 7 Deliveries (Qty 8)	4	2017	3	2018
Deliveries: AN/ALQ-231(V)3 Lot 8 Deliveries (Qty 9)	4	2018	3	2019

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3327 / *MAGTF EW Aviation Development*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Deliveries: AN/ALQ-231(V)3 Lot 9 Deliveries (Qty 9)	4	2019	3	2020
Deliveries: AN/ALQ-231(V)3 Lot 10 Deliveries (Qty 22)	4	2020	3	2021
Deliveries: AN/ALQ-231(V)1 BLK X Lot 1 Deliveries (Qty 2)	4	2021	3	2022
Deliveries: AN/ALQ-231(V)1 BLK X Lot 2 Deliveries (Qty 3)	4	2022	4	2022
Deliveries: AN/ALQ-231(V)1 BLK X Lot 3 Deliveries (Qty 8)	4	2023	4	2023
Unmanned Aircraft System (UAS) Electronic Warfare (EW) Payload				
Acquisition Milestones: UAS EW Payload MS B	4	2018	4	2018
Acquisition Milestones: UAS EW Payload MS C	4	2020	4	2020
Acquisition Milestones: UAS EW Payload IOC	2	2022	2	2022
Systems Development: UAS EW Payload Hardware Development	3	2018	2	2020
Systems Development: UAS EW Payload Software Development	4	2018	2	2020
Systems Development: Ground Control Station Software Update	4	2019	4	2020
Test & Evaluation: UAS EW Payload Lab & Ground Test	4	2019	1	2020
Test & Evaluation: UAS EW Payload Development Test	2	2020	3	2020
Test & Evaluation: UAS EW Payload IOT&E	4	2020	1	2021
Production Milestones: UAS EW Payload Lot 1 Award (QTY 28)	2	2021	2	2021
Deliveries: UAS EW Payload Lot 1 Deliveries (QTY 28)	2	2022	1	2023
MAGTF EW Jammer Techniques Development				
Systems Development: Threat Emulator / Simulator Development	2	2018	1	2020
Test & Evaluation: Jammer Techniques Technical Evaluation	2	2018	1	2020
Deliveries: Threat Emulator / Simulator Delivery	2	2018	1	2020

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy			Date: February 2018
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / *Electronic Warfare (EW) Dev*	Project (Number/Name) 3371 / *MAGTF EW Interoperability Development*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
3371: *MAGTF EW Interoperability Development*	0.000	1.617	1.639	0.371	-	0.371	1.281	1.199	1.002	1.029	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

PU 3371 was created in FY 2015 to administratively highlight specific work that was being done in Program Element (PE) 0604376M, Project Unit (PU) 3327. This PU has been moved to PE 0604270N in FY 2017 and continues efforts previously funded under PU 3327.

A. Mission Description and Budget Item Justification

This project unit supports the United States Marine Corps air-ground interoperability by providing a variety of capabilities through multiple functions of the Software Reprogrammable Payload (SRP) when installed aboard SRP-capable aircraft. The spiral development plans allow adaptable, scalable, and open architecture philosophy to reduce stove-pipe solutions but enable future growth at a reduced operational and sustainment cost.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Software Reprogrammable Payload	1.617	1.639	0.371	0.000	0.371
Articles:	-	-	-	-	-
FY 2018 Plans: Continue the development of the reduced form factor SRP for the identified platforms that cannot support the Spiral 2 form factor and field evaluation of the Spiral 2.					
FY 2019 Base Plans: Continue the development of the reduced form factor SRP for the identified platforms that cannot support the Spiral 2 form factor and field evaluation of the Spiral 2.					
FY 2019 OCO Plans: N/A					
FY 2018 to FY 2019 Increase/Decrease Statement: The FY 2019 funding request was reduced by $1.268 million to account for the availability of prior year execution balances.					
Accomplishments/Planned Programs Subtotals	1.617	1.639	0.371	0.000	0.371

Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3371 / *MAGTF EW Interoperability Development*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This project unit is part of United States Marine Corps led efforts to ensure Marine Corps requirements are included in the budget process for the Future Year Defense Program and beyond. This effort is for the Software Reprogrammable Payload. This program is part of the Marine Corps initial steps to create a common interoperable system to distribute multiple data types across the battle-space through spiral development.

E. Performance Metrics

Successful completion of the Spiral 2 development and demonstration onboard MV-22 test platform.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3371 / *MAGTF EW Interoperability Development*

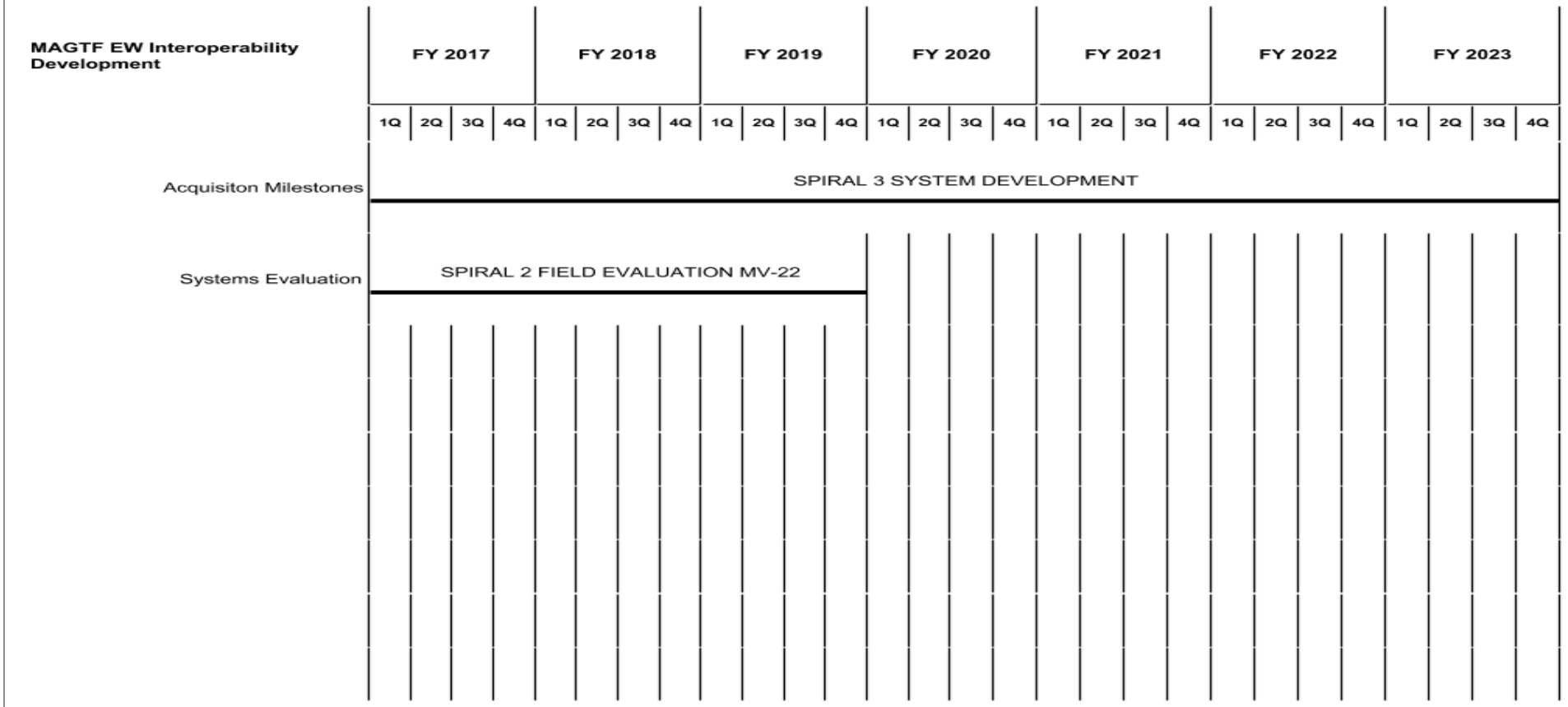
Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWCAD : Patuxent River, MD	0.000	0.408	Nov 2016	0.706	Nov 2017	0.371	Nov 2018	-		0.371	Continuing	Continuing	Continuing
Systems Engineering	WR	NRL : Washington, DC	0.000	0.344	Nov 2016	0.165	Nov 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	Assurance Technology Corp : Carlisle, MA	0.000	0.665	Dec 2016	0.519	Dec 2017	0.000		-		0.000	0.000	1.184	1.184
Systems Engineering	C/CPFF	DCS : Alexandria, VA	0.000	0.200	Dec 2016	0.249	Dec 2017	0.000		-		0.000	0.000	0.449	0.449
		Subtotal	0.000	1.617		1.639		0.371		-		0.371	Continuing	Continuing	N/A

	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	1.617		1.639		0.371		-		0.371	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3371 / *MAGTF EW Interoperability Development*



2019PB - 0604270N - 3371

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy		Date: February 2018
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604270N / *Electronic Warfare (EW) Dev*	**Project (Number/Name)** 3371 / *MAGTF EW Interoperability Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
MAGTF EW Interoperability Development				
Acquisiton Milestones: SPIRAL 3 SYSTEM DEVELOPMENT	1	2017	4	2023
Systems Evaluation: SPIRAL 2 FIELD EVALUATION MV-22	1	2017	4	2019