Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy												Date: March 2019
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0604269N *I EA-18 Squadrons*							
COST ($ in Millions)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Cost To Complete**	**Total Cost**
Total Program Element	1,980.362	137.029	242.719	143.585	-	143.585	118.535	67.546	69.981	72.985	Continuing	Continuing
3063: *EA-18G Development*	1,980.362	137.029	147.419	143.585	-	143.585	118.535	67.546	69.981	72.985	Continuing	Continuing
9999: *Congressional Adds*	0.000	0.000	95.300	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	95.300
Program MDAP/MAIS Code: **Project MDAP/MAIS Code(s):** 378												

A. Mission Description and Budget Item Justification

The EA-18G has replaced the EA-6B aircraft as the primary Electronic Attack (EA) platform supporting the Navy and Marine Corps. The EA-18G will be the sole EA aircraft in the inventory. Capabilities of the EA-18G weapon system and ancillary equipment can be upgraded to accommodate and incorporate new or enhanced weapons as well as advances in technology to respond effectively to emerging future threats. EA-18G "Flight Plan" spiral capability development is critical to the baseline of the EA-18G next generation mission system capability and maintaining tactical relevance in support of Navy Aviation Plan 2030. Development continues for design and integration of avionics systems, integration of Jamming Techniques Optimization improvements, evolutionary software upgrades via the System Configuration Set block builds and related testing. Continued advanced development engineering for improvements in reliability and maintainability are required to ensure maximum benefit is achieved through reduced cost of ownership and to provide enhanced availability.

The FY 2020 funding request continues improvements to the ALQ-218 Airborne Electronic Attack Systems Enhancements (ASE) and Integrated Capability Package (ICP)-3. This funds a combination hardware/software solution to the ALQ-218 receiver to enable low band geo-location, faster geo-location response times, improved location, identification, and probability of intercept by enabling the EA-18G to detect and identify radio frequency emitters with complex waveforms that typically are not able to be detected or identified using traditional methods. ASE provides foundational capabilities needed to support the ICP-3 passive kill chain. Additional funds added for transitioning Reactive Electronic Attack Measures (REAM) technology from an ONR future Naval capabilities (FNC) science and technology effort to the platform.

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy	Date: March 2019
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604269N *I EA-18 Squadrons*

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	173.488	147.419	159.472	-	159.472
Current President's Budget	137.029	242.719	143.585	-	143.585
Total Adjustments	-36.459	95.300	-15.887	-	-15.887
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	95.300			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-4.789	0.000			
• Rate/Misc Adjustments	0.000	0.000	-15.887	-	-15.887
• Congressional Directed Reductions Adjustments	-31.670	-	-	-	-

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2018	FY 2019
Project: 9999: *Congressional Adds*		
Congressional Add: *EA-18G Advanced Modes/Cognitive Electronic Warfare Acceleration*	0.000	95.300
Congressional Add Subtotals for Project: 9999	0.000	95.300
Congressional Add Totals for all Projects	0.000	95.300

Change Summary Explanation

Technical: Not Applicable

Schedule: Not Applicable

The FY 2020 funding request was increased by $0.247 million as a result of a rate adjustment.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy											Date: March 2019	
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604269N / *EA-18 Squadrons*				Project (Number/Name) 3063 / *EA-18G Development*			
COST ($ in Millions)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Cost To Complete**	**Total Cost**
3063: *EA-18G Development*	1,980.362	137.029	147.419	143.585	-	143.585	118.535	67.546	69.981	72.985	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 378

A. Mission Description and Budget Item Justification

The EA-18G is the replacement aircraft for the EA-6B. The EA-18G development program upgrades the EA-6B's Airborne Electronic Attack capability to detect, identify, locate and suppress hostile emitters; provides enhanced connectivity to National, Theater and Strike assets; and provides organic precision emitter targeting for employment of onboard suppression weapons (High-speed Anti-Radiation Missile family) to fulfill operational requirements. The performance of the aircraft is compatible with the primary strike/fighter aircraft projected to be in the inventory, allowing it to be fully integrated into specific strike packages.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: EA-18G Design and Avionics Integration	61.906	66.945	125.893	0.000	125.893
Articles:	-	-	-	-	-

Description: The EA-18G has the capability to operate autonomously or as a major node in a network-centric operation and is being designed to perform a range of Electronic Warfare/Electronic Attack functions either simultaneously or independently. Funding will be utilized for design and integration of avionics systems into the EA-18G.

FY 2019 Plans:
Continue integration of improvements developed through the Jamming Techniques Optimization teams. Continue and increase engineering, flight hours and test efforts for ALQ-218 Airborne Electronic Attack Systems Enhancements (ASE) upgrade requirements to improve low band geo-location, signal detection, and identification capabilities necessary for complex emitter geo-location and identification. Funds will support a combined hardware/software solution to provide significant capability enhancements to the ALQ-218 which are required to address evolving threats. To incorporate those ALQ-218 ASE upgrades with the SCS fleet releases on EA-18G, an increase in engineering, system integration, SCS development, Operational Flight Program re-hosting, test planning, materials, lab equipment, and lab/flight testing are being funded.

FY19 continues added funding levels to the EA-18G budget to support increased ALQ-218 signal processing capacity and capability by adding the LBDR Capability enhancements enable better detection and correct identification of modern radars. Capacity improvements provide increased signal processing in current day dense electromagnetic environments. Funds will support Transitioning Reactive Electronic Attack Measures

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604269N / *EA-18 Squadrons*	**Project (Number/Name)** 3063 / *EA-18G Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
(REAM) technology from a ONR future naval capabilities (FNC) science and technology effort to the platform. This technology and hardware upgrade of the Electronic Attack Unit (EAU) will bring Cognitive Electronic Warfare capability to the platform and is the start to EA-18G BLK II modernization. As well as development and integration of special mission pods in support of BLK II modernization. ***FY 2020 Base Plans:*** Continue integration of improvements developed through the Jamming Techniques Optimization teams. Continue and increase engineering, flight hours and test efforts for ALQ-218 ASE upgrade requirements to improve low band geo-location, signal detection, and identification capabilities necessary for complex emitter geo-location and identification. Funds will support a combined hardware/software solution to provide significant capability enhancements to the ALQ-218 which are required to address evolving threats. To incorporate those ALQ-218 ASE upgrades with the SCS fleet releases on EA-18G, an increase in engineering, system integration, SCS development, Operational Flight Program re-hosting, test planning, materials, lab equipment, and lab/flight testing are being funded. FY20 continues funding to support increased ALQ-218 signal processing capacity and capability by adding the LBDR Capability enhancements enable better detection and correct identification of modern radars. Capacity improvements provide increased signal processing in current day dense electromagnetic environments. Funds will support Transitioning REAM technology from a ONR future naval capabilities science and technology effort to the platform. This technology and hardware upgrade of the EAU will bring Cognitive Electronic Warfare capability to the platform and is the start to EA-18G BLK II modernization as well as development and integration of special mission pods in support of BLK II modernization. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** FY19 to FY20 increase accounts for the transition of REAM from ONR in alignment with EAU NRE and hardware upgrades to bring Cognitive Electronic Attack capability to the EA-18G.					
Title: EA-18G Software Development	15.387	15.695	1.247	0.000	1.247
Articles:	-	-	-	-	-
Description: Continued capability enhancements to improve the EA-18G Airborne Electronic Attack capabilities are predominantly realized through evolutionary software upgrades. Funding will be utilized to develop improved software capabilities for the EA-18G through System Configuration Set block software updates.					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604269N / *EA-18 Squadrons*	**Project (Number/Name)** 3063 / *EA-18G Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
FY 2019 Plans: Continue System Configuration Set block software development and integration for the EA-18G, specifically System Configuration Set builds H14, H16 and H18. Increase to engineering efforts for integration of active and passive kill chain capabilities and sensors. Funding for Multi System Integration algorithm and sensor developmental efforts also increased at test activities for ongoing modeling and simulation upgrades such as Net Enabled Weapon Controller Interface Model interoperability software and equipment, and Live Virtual Construct interoperability efforts. ***FY 2020 Base Plans:*** Continue System Configuration Set block software development and integration for the EA-18G, specifically System Configuration Set builds H16 and H18. Increase to engineering efforts for integration of active and passive kill chain capabilities and sensors. Funding for Multi System Integration algorithm and sensor developmental efforts also increased at test activities for ongoing modeling and simulation upgrades such as Net Enabled Weapon Controller Interface Model interoperability software and equipment, and Live Virtual Construct interoperability efforts. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** FY19 to FY20 decrease accounts for a realignment within the PU for efforts involving the EA-18G Design and Integration line for REAM, Cognitive EW, and EAU NRE.					
Title: EA-18G Developmental & Operational Testing	5.481	5.591	5.591	0.000	5.591
Articles:	-	-	-	-	-
Description: Funding will be utilized to support required test phases of the EA-18G. ***FY 2019 Plans:*** Continue operational and integration test of EA-18G avionics upgrades and System Configuration Set block software updates to include Flight Tests conducted in conjunction with various Fleet Exercises (i.e. FLEX-1X). ***FY 2020 Base Plans:*** Continue operational and integration test of EA-18G avionics upgrades and System Configuration Set block software updates to include Flight Tests conducted in conjunction with various Fleet Exercises (i.e. FLEX-1X). ***FY 2020 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604269N / *EA-18 Squadrons*	**Project (Number/Name)** 3063 / *EA-18G Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
N/A					
Title: EA-18G Flight Plan Engineering / System Configuration Set Development and Integration	54.155	59.088	10.754	0.000	10.754
Articles:	-	-	-	-	-
Description: EA-18G "Flight Plan" spiral capability development is critical to the baseline of the Growler next generation mission system capability. Funding will support the development, test and integration efforts required to maintain tactical relevance in support of Navy Aviation Plan 2030. ***FY 2019 Plans:*** Continue Flight Plan Engineering efforts to include EA-18G improvements necessary for Growler relevance and tactical supremacy; Navy Integrated Fire Control-Counter Air system configuration set requirements to support Navy Integrated Air and Missile Defense capability requirements and enhance EA-18G Cooperative Engagement Capability. Funding supports development (hardware and software), test and integration efforts for Flight Plan requirements such as DTP-N to include Aided Target Recognition, Stationary Target Recognition, Maritime Multiple Target Track and Engagement, Multi-Level Security, Strike Accelerator and Advanced Tactical Data Link; Display Improvements for enhanced sensor integration; PALC; Flight Path Control (Magic Carpet); TDOA, NCCT, and continued updates to Wingman Compatibility improvements. ***FY 2020 Base Plans:*** Continue Flight Plan Engineering efforts to include EA-18G improvements necessary for Growler relevance and tactical supremacy; Navy Integrated Fire Control-Counter Air system configuration set requirements to support Navy Integrated Air and Missile Defense capability requirements and enhance EA-18G Cooperative Engagement Capability. Funding supports development (hardware and software), test and integration efforts for Flight Plan requirements such as DTP-N to include Aided Target Recognition, Stationary Target Recognition, Maritime Multiple Target Track and Engagement, Multi-Level Security, Strike Accelerator and Advanced Tactical Data Link; Display Improvements for enhanced sensor integration; PALC; Flight Path Control (Magic Carpet); TDOA, NCCT, and continued updates to Wingman Compatibility improvements. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** FY19 to FY20 decrease accounts for a realignment within the PU for efforts involving the EA-18G Design and Integration line for REAM, Cognitive EW, and EAU NRE.					
Title: EA-18G Obsolescence Redesign	0.100	0.100	0.100	0.000	0.100

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604269N / *EA-18 Squadrons*	**Project (Number/Name)** 3063 / *EA-18G Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Articles:	-	-	-	-	-
Description: Develop and test design modifications to address obsolescence issues. ***FY 2019 Plans:*** Develop and test design modifications to hardware components and software systems in response to EA-18G weapon system and ancillary equipment obsolescence issues. ***FY 2020 Base Plans:*** Develop and test design modifications to hardware components and software systems in response to EA-18G weapon system and ancillary equipment obsolescence issues. ***FY 2020 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	137.029	147.419	143.585	0.000	143.585

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• APN/05250: *F-18 Series (OSIP 011-10)*	40.140	49.645	70.850	-	70.850	79.334	92.008	78.422	80.086	42.336	667.406
• RDTEN/1662: *F/A-18 Improvement*	68.166	102.938	117.011	-	117.011	130.334	118.228	91.397	85.524	Continuing	Continuing

Remarks

D. Acquisition Strategy

The program achieved Full Rate Production in November 2009. Contractual studies are underway for Operational Requirement Document core Block II activities and those efforts will be integrated into the overall EA-18G plan/roadmap as resources permit. EA-18G software upgrades are incrementally developed, integrated and fielded. Software development and integration are coordinated efforts between government activities and industry partners to field capability upgrades to the EA-18G fleet.

E. Performance Metrics

Complete incorporation of EA-18G specific upgrades into the System Configuration Set block software builds to meet planned Fleet Release dates.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604269N / *EA-18 Squadrons*	**Project (Number/Name)** 3063 / *EA-18G Development*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering (SCS/Flight Plan)	WR	NAWCAD : Pax River, MD	36.194	6.250	Dec 2017	19.260	Dec 2018	22.080	Dec 2019	-		22.080	Continuing	Continuing	Continuing
Systems Engineering (SCS/Flight Plan)	WR	NAWCWD : China Lake, CA	108.110	13.692	Dec 2017	30.373	Dec 2018	27.180	Dec 2019	-		27.180	Continuing	Continuing	Continuing
Systems Engineering (SCS/Flight Plan)	WR	NAWCWD : Pt. Mugu, CA	86.155	16.492	Dec 2017	25.476	Dec 2018	22.604	Dec 2019	-		22.604	Continuing	Continuing	Continuing
Systems Engineering (SCS/Flight Plan)	WR	NSMA : Various	0.250	4.113	Apr 2018	4.755	Apr 2019	4.472	Apr 2020	-		4.472	Continuing	Continuing	Continuing
Systems Engineering (Flight Plan DTP-N)	C/CPFF	Boeing : St. Louis, MO	38.049	8.400	Mar 2018	10.368	Mar 2019	10.575	Mar 2020	-		10.575	Continuing	Continuing	Continuing
System Engineering (Flight Plan TDOA)	C/IDIQ	Boeing : St. Louis, MO	2.343	6.955	Dec 2017	3.833	Dec 2018	3.910	Dec 2019	-		3.910	Continuing	Continuing	Continuing
System Engineering (Flight Plan TDOA)	C/CPFF	Northrop Grumman : Various	1.013	14.966	Dec 2017	7.066	Dec 2018	8.527	Dec 2019	-		8.527	Continuing	Continuing	Continuing
System Engineering (ALQ-218 ASE)	C/IDIQ	Northrop Grumman : Various	51.971	21.277	Apr 2018	7.271	Apr 2019	7.633	Apr 2020	-		7.633	Continuing	Continuing	Continuing
Systems Engineering (ALQ-218 ASE)	C/CPFF	Boeing : Various	3.074	11.647	Apr 2018	4.985	Apr 2019	5.549	Apr 2020	-		5.549	Continuing	Continuing	Continuing
Systems Engineering (ALQ-218 LBDR)	WR	NAWCWD : Pt. Mugu, CA	0.000	1.500	Dec 2017	1.300	Dec 2018	0.965	Dec 2019	-		0.965	Continuing	Continuing	Continuing
Systems Engineering (ALQ-218 LBDR)	WR	NAWCWD : China Lake, CA	0.000	1.000	Dec 2017	1.020	Dec 2018	0.912	Dec 2019	-		0.912	Continuing	Continuing	Continuing
Systems Engineering (ALQ-218 LBDR)	C/IDIQ	Northrop Grumman : Various	0.000	8.825	Dec 2017	6.000	Dec 2018	4.870	Dec 2019	-		4.870	Continuing	Continuing	Continuing
Systems Engineering (ALQ-218 LBDR)	C/IDIQ	Boeing : Various	0.000	1.400	Dec 2017	1.400	Dec 2018	1.228	Dec 2019	-		1.228	Continuing	Continuing	Continuing
Prior Year Prod Dev no longer funded in FYDP	Various	Various : Various	1,104.103	0.000		0.000		0.000		-		0.000	0.000	1,104.103	-
		Subtotal	1,431.262	116.517		123.107		120.505		-		120.505	Continuing	Continuing	N/A

Remarks

Funding increases are for Integrated Capability Package-3 (ICP-3) Flight Plan/SCS efforts as well as ALQ-218 Airborne Electronic Attack Systems Enhancements (ASE), which includes Low-Band Dedicated Receiver (LBDR). ICP-3 Flight Plan/SCS efforts include systems engineering, improvement, design and integration efforts for Digital Targeting Processor - Networked (DTP-N) and Network Centric Collaborative Targeting (NCCT). Funding increases also support REAM and Electronic Attack Unit (EAU) NRE.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604269N / *EA-18 Squadrons*	Project (Number/Name) 3063 / *EA-18G Development*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Obsolescence Redesign	Various	Various : Various	0.380	0.100	Jun 2018	0.100	Jun 2019	0.100	Jun 2020	-		0.100	Continuing	Continuing	Continuing
Flight Plan Engineering/ SCS Development and Integration	Various	Various : Various	5.761	3.637	Dec 2017	4.568	Dec 2018	4.344	Dec 2019	-		4.344	Continuing	Continuing	Continuing
Flight Plan: ICP-3	Various	Various : Various	0.000	4.000	Dec 2017	4.320	Dec 2018	4.406	Dec 2019	-		4.406	0.000	12.726	-
Prior Year Support no longer funded in FYDP	Various	Various : Various	235.789	0.000		0.000		0.000		-		0.000	0.000	235.789	-
		Subtotal	241.930	7.737		8.988		8.850		-		8.850	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integration & Operational Testing	WR	Various : Various	117.725	3.731	Jun 2018	6.102	Jun 2019	5.624	Jun 2020	-		5.624	Continuing	Continuing	Continuing
Integration & Operational Testing	WR	COTF : China Lake, CA	0.600	6.819	Dec 2017	6.955	Dec 2018	6.224	Dec 2019	-		6.224	Continuing	Continuing	Continuing
Prior Year T&E no longer funded in FYDP	Various	Various : Various	108.533	0.000		0.000		0.000		-		0.000	0.000	108.533	-
		Subtotal	226.858	10.550		13.057		11.848		-		11.848	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support (Seaport-CSS)	C/CPFF	Wyle Lab : Pax River, MD	15.155	0.185	Apr 2018	0.188	Apr 2019	0.191	Apr 2020	-		0.191	Continuing	Continuing	Continuing
Government Engineering Support	WR	NAWCAD : Pax River, MD	34.027	0.435	Dec 2017	0.443	Dec 2018	0.451	Dec 2019	-		0.451	Continuing	Continuing	Continuing
Program Management Support	WR	NAWCAD : Pax River, MD	23.808	0.337	Dec 2017	0.343	Dec 2018	0.335	Dec 2019	-		0.335	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604269N / *EA-18 Squadrons*	Project (Number/Name) 3063 / *EA-18G Development*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Flight Plan Engineering / System Configuration Set Development & Integration	WR	NAWCAD : Pax River, MD	2.200	0.750	Dec 2017	0.765	Dec 2018	0.780	Dec 2019	-		0.780	Continuing	Continuing	Continuing
Flight Plan Engineering / System Configuration Set Development & Integration	WR	NAWCWD : China Lake, CA	0.940	0.424	Dec 2017	0.433	Dec 2018	0.531	Dec 2019	-		0.531	Continuing	Continuing	Continuing
Travel	WR	Various : Various	2.841	0.094	Dec 2017	0.095	Dec 2018	0.094	Dec 2019	-		0.094	Continuing	Continuing	Continuing
Prior Year Mgmt Svcs no longer funded in FYDP	Various	Various : Various	1.341	0.000		0.000		0.000		-		0.000	0.000	1.341	-
		Subtotal	80.312	2.225		2.267		2.382		-		2.382	Continuing	Continuing	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1,980.362	137.029		147.419		143.585		-		143.585	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604269N / *EA-18 Squadrons*	**Project (Number/Name)** 3063 / *EA-18G Development*

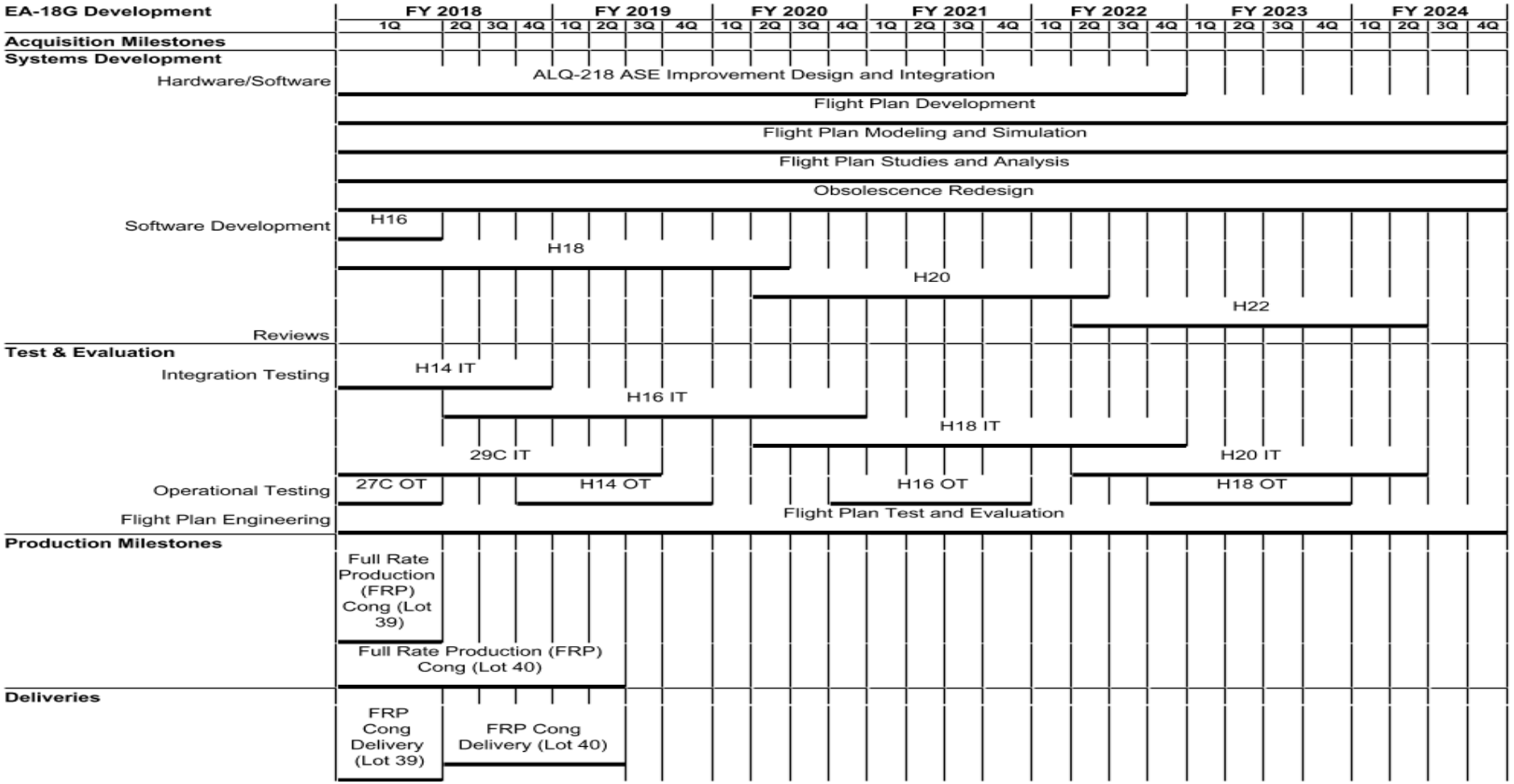

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604269N / *EA-18 Squadrons*	**Project (Number/Name)** 3063 / *EA-18G Development*

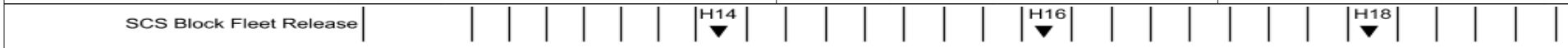

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604269N / *EA-18 Squadrons*	**Project (Number/Name)** 3063 / *EA-18G Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
EA-18G Development				
Systems Development: Hardware/Software: ALQ-218 ASE Improvement Design and Integration	1	2018	4	2022
Systems Development: Hardware/Software: Flight Plan Development	1	2018	4	2024
Systems Development: Hardware/Software: Flight Plan Modeling and Simulation	1	2018	4	2024
Systems Development: Hardware/Software: Flight Plan Studies and Analysis	1	2018	4	2024
Systems Development: Hardware/Software: Obsolescence Redesign Development and Testing	1	2018	4	2024
Systems Development: Software Development: H16 Software Development	1	2018	1	2018
Systems Development: Software Development: H18 Software Development	1	2018	2	2020
Systems Development: Software Development: H20 Software Development	2	2020	2	2022
Systems Development: Software Development: H22 Software Development	2	2022	2	2024
Test & Evaluation: Integration Testing: H14 Integration Testing	1	2018	4	2018
Test & Evaluation: Integration Testing: H16 Integration Testing	2	2018	4	2020
Test & Evaluation: Integration Testing: H18 Integration Testing	2	2020	4	2022
Test & Evaluation: Integration Testing: H20 Integration Testing	2	2022	2	2024
Test & Evaluation: Integration Testing: 29C Integration Testing	1	2018	3	2019
Test & Evaluation: Operational Testing: 27C Operational Testing	1	2018	1	2018
Test & Evaluation: Operational Testing: H16 Operational Testing	4	2020	4	2021
Test & Evaluation: Operational Testing: H14 Operational Testing	4	2018	4	2019
Test & Evaluation: Operational Testing: H18 Operational Testing	4	2022	4	2023
Test & Evaluation: Flight Plan Engineering: Developmental, Integration and Operational Testing	1	2018	4	2024
Production Milestones: Full Rate Production - Congressional add Lot 39	1	2018	1	2018

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604269N / *EA-18 Squadrons*	**Project (Number/Name)** 3063 / *EA-18G Development*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Production Milestones: Full Rate Production - Congressional add Lot 40	1	2018	2	2019
Deliveries: FRP Cong Delivery (Lot 39)	1	2018	1	2018
Deliveries: FRP Cong Delivery (Lot 40)	2	2018	2	2019
Deliveries: SCS Block Fleet Release: H16 Fleet Release	4	2021	4	2021
Deliveries: SCS Block Fleet Release: H18 Fleet Release	4	2023	4	2023
Deliveries: SCS Block Fleet Release: H14 Fleet Release	4	2019	4	2019

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604269N / *EA-18 Squadrons*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	0.000	95.300	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	95.300
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

FY 19 Congressional Add: EA-18G Advanced Modes/Cognitive Electronic Warfare (EW) Acceleration. Reactive Electronic Attack Measures (REAM) uses cognitive EW machine learning algorithms to provide the warfighter with capabilities to counter advanced dynamic IADS by detecting and identifying unknown adaptive radar emitters. Advanced Modes Phases 1 and 2 are foundational building blocks needed to support REAM via jammer technique management enhancements. REAM autonomously derives effective countermeasures against new, agile, unknown threats, prioritizes threats in a dense EM environment, and dynamically allocates EW resources in one-on-many scenarios. REAM accomplishes this by implementing machine learning logic, automated use of effective EA techniques, and SW/HW upgrades.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019
Congressional Add: EA-18G Advanced Modes/Cognitive Electronic Warfare Acceleration	0.000	95.300
FY 2018 Accomplishments: N/A		
FY 2019 Plans: FY19 funds EA-18G Advanced Modes/Cognitive EW/REAM risk reduction studies to support hardware development, REAM Electronic Attack Unit (EAU) Software environment, mission planning/post mission support, REAM Cybersecurity, Cognitive Mission Computing (CMC) Enhancements, as well as threat projection and system impacts.		
Congressional Adds Subtotals	0.000	95.300

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• 0525: *Advanced Modes/Cognitive EW*	0.000	13.900	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	13.900

Remarks

D. Acquisition Strategy

Contractual efforts are underway for determination of EA-18G Advanced Modes/Cognitive EW/REAM hardware solutions, risk reduction efforts, and software development. These efforts are coordinated between government activities and industry partners.

E. Performance Metrics

Complete requisite requirements to begin Engineering Manufacturing Development phase for EA-18G Advanced Modes/Cognitive EW/REAM.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604269N / *EA-18 Squadrons*	Project (Number/Name) 9999 / *Congressional Adds*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
H18 SOR	WR	NAWCWD : China Lake, CA	0.000	0.000		15.379	Jan 2019	0.000		-		0.000	0.000	15.379	-
REAM Hardware Phase I	WR	NAWCWD : Point Mugu, CA	0.000	0.000		5.150	Jan 2019	0.000		-		0.000	0.000	5.150	-
REAM Risk Reduction	WR	NAVSEA : Crane, IN	0.000	0.000		10.915	Feb 2019	0.000		-		0.000	0.000	10.915	-
Systems Engineering (REAM)	WR	NSMA : Various	0.000	0.000		14.000	Mar 2019	0.000		-		0.000	0.000	14.000	-
Hardware Development	C/IDIQ	NGC : Various	0.000	0.000		15.000	Apr 2019	0.000		-		0.000	0.000	15.000	15.000
REAM Hardware Phase I	C/BOA	NGC : Various	0.000	0.000		6.555	Mar 2019	0.000		-		0.000	0.000	6.555	6.555
REAM Risk Reduction	C/IDIQ	NGC : Various	0.000	0.000		10.985	Mar 2019	0.000		-		0.000	0.000	10.985	10.985
Systems Engineering (REAM)	WR	NAWCAD : Pax River, MD	0.000	0.000		8.841	Feb 2019	0.000		-		0.000	0.000	8.841	-
		Subtotal	0.000	0.000		86.825		0.000		-		0.000	0.000	86.825	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CD-3 Integration & Test Support	WR	NAWCWD : Pt. Mugu, CA	0.000	0.000		0.400	Dec 2018	0.000		-		0.000	0.000	0.400	-
Engineering & Logistics Support	WR	NAVSEA : Crane, IN	0.000	0.000		1.000	Nov 2018	0.000		-		0.000	0.000	1.000	-
REAM Block II Support	C/CPFF	JHU/APL : Laurel, MD	0.000	0.000		0.750	Jan 2019	0.000		-		0.000	0.000	0.750	0.750
		Subtotal	0.000	0.000		2.150		0.000		-		0.000	0.000	2.150	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integration & Operational Testing	WR	Various : Various	0.000	0.000		0.275	Jan 2019	0.000		-		0.000	0.000	0.275	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604269N / *EA-18 Squadrons*	Project (Number/Name) 9999 / *Congressional Adds*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integration & Operational Testing	C/FFP	NGC : Various	0.000	0.000		3.000	Mar 2019	0.000		-		0.000	0.000	3.000	3.000
Integration & Operational Testing (CLATS)	C/CPFF	Dynetics : Various	0.000	0.000		2.500	Jan 2019	0.000		-		0.000	0.000	2.500	2.500
		Subtotal	0.000	0.000		5.775		0.000		-		0.000	0.000	5.775	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD : Pax River, MD	0.000	0.000		0.250	Jan 2019	0.000		-		0.000	0.000	0.250	-
Government Engineering Support	WR	NAWCWD : Pt. Mugu	0.000	0.000		0.300	Jan 2019	0.000		-		0.000	0.000	0.300	-
		Subtotal	0.000	0.000		0.550		0.000		-		0.000	0.000	0.550	N/A

	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		95.300		0.000		-		0.000	0.000	95.300	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604269N / *EA-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

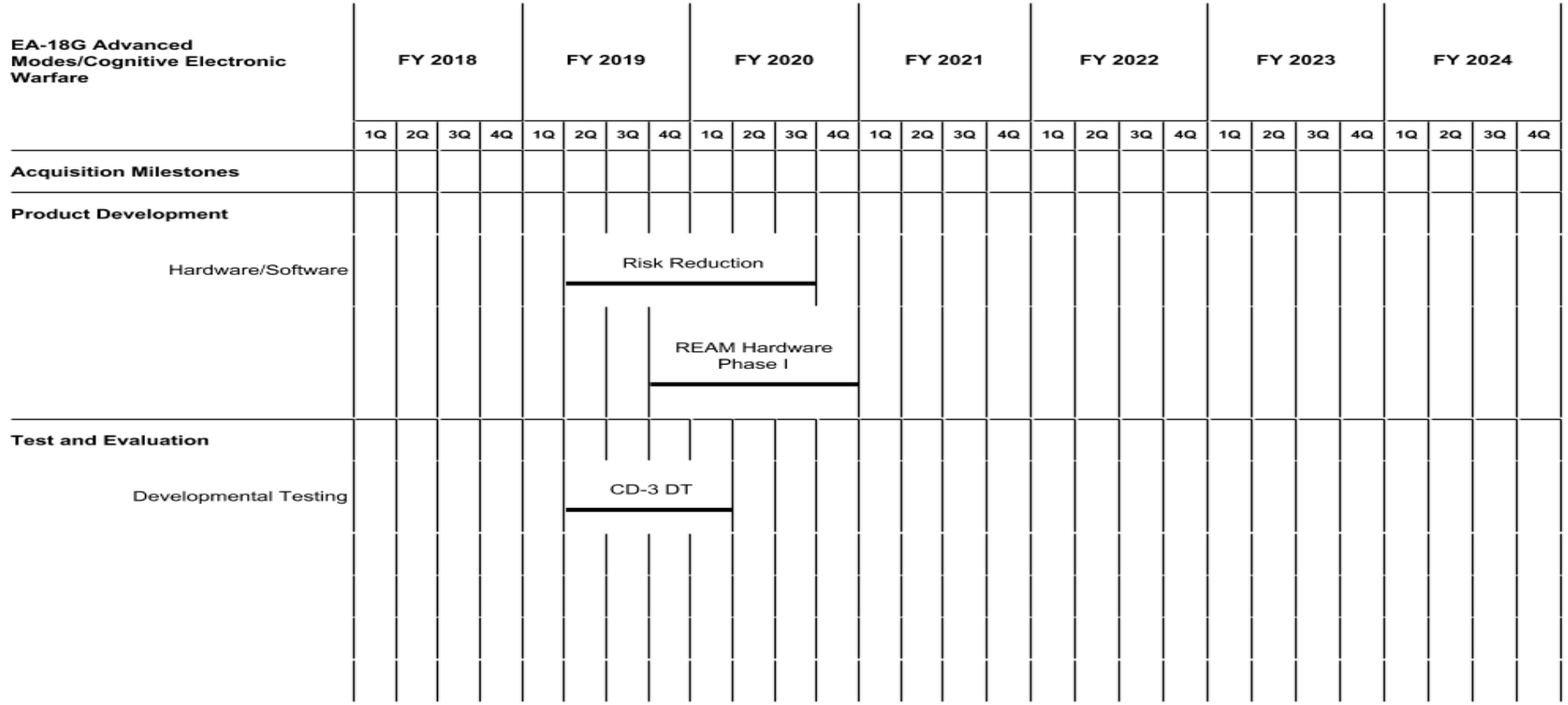

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 5	**R-1 Program Element (Number/Name)** PE 0604269N / *EA-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
EA-18G Advanced Modes/Cognitive Electronic Warfare				
Product Development: Hardware/Software: Risk Reduction	2	2019	3	2020
Product Development: Hardware/Software: REAM Hardware Phase I	4	2019	4	2020
Test and Evaluation: Developmental Testing: Capability Demonstration 3	2	2019	1	2020