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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Navy **Date:** February 2020

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 7: Operational Systems Development</i>					R-1 Program Element (Number/Name) PE 0204163N / <i>Fleet Tactical Development</i>							
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	247.988	1.613	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	249.601
0725: <i>Communication Automation</i>	247.988	1.613	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	249.601

Note

Funding for the following projects have been realigned out of PE 0204163N into PE 0604280N and PE 0303138N as part of Program Element Consolidation starting in FY20: Project 0725 Communication Automation.

A. Mission Description and Budget Item Justification

The Communication Automation Program is a continuing program that provides for automation and communications upgrades for fleet tactical users. It includes Battle Force Tactical Network (BFTN) and Automated Digital Network System (ADNS).

The Battle Force Tactical Network (BFTN) on each surface, subsurface, air, or fixed US Navy platform utilizes previously installed/existing Line of Sight (LOS)/Extended Line of Sight (ELOS) radios to create a secure gateway that inter-connects all users into a common Radio Frequency (RF) Tactical Network. This network directly supports the Resilient Command and Control (RC2) posture of US-Only and North Atlantic Treaty Organization (NATO) Allied/Coalition users' tactical data information exchanges on each platform between and/or across separately dispersed RF Networks even if Satellite Communications (SATCOM) channels to shore are lost. This system is formally specified by both Fleet Commanders as a threshold capability for global maritime command control and communications in a Distributed Maritime Environment to execute current warfighting plans.

Automated Digital Network System (ADNS) is the method by which Tactical Navy units transfer Internet Protocol (IP) data to Navy and Department of Defense communities on the Global Information Grid (GIG). ADNS is the gateway to tactical Wide Area Network (WAN) afloat for Internet Protocol network operations, supporting information dissemination and external connectivity. ADNS enables services and applications to interconnect to the Defense Information Systems Network (DISN) ashore via multiple Radio Frequency (RF) resources, to include emerging Assured Command and Control (C2) capabilities and pier connectivity. ADNS will perform technical analyses and engineering efforts associated with implementation of new technology to enable rapid introduction of new products and technology, prevent obsolescence, and end of support issues.

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Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0204163N / <i>Fleet Tactical Development</i>
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B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	1.344	0.000	0.000	-	0.000
Current President's Budget	1.613	0.000	0.000	-	0.000
Total Adjustments	0.269	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.269	0.000			
• SBIR/STTR Transfer	-	-			
• Rate/Misc Adjustments	0.000	0.000	0.000	-	0.000

Change Summary Explanation

Beginning in FY20, project 0725 was realigned from Program Element (PE) 0204163N to PE 0604280N (BFTN) and PE 0303138N (ADNS) due to budget line item consolidation.

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy **Date:** February 2020

Appropriation/Budget Activity 1319 I 7	R-1 Program Element (Number/Name) PE 0204163N / <i>Fleet Tactical Development</i>	Project (Number/Name) 0725 / <i>Communication Automation</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
0725: <i>Communication Automation</i>	247.988	1.613	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	249.601
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Funding has been realigned out of PE 0204163N Project 0725, into PE 0604280N Battle Force Tactical Network (BFTN) and PE 0303138N Automated Digital Network System (ADNS) as part of RDTEN PE Consolidation starting in FY20.

A. Mission Description and Budget Item Justification

The Battle Force Tactical Network (BFTN) on each surface, subsurface, air, or fixed US Navy platform uses previously installed/existing Line of Sight (LOS)/Extended Line of Sight (ELOS) radios (a.k.a. Radio Frequency (RF)) to create a secure gateway that inter-connects all users into a common RF Tactical Network (a.k.a. wireless). BFTN enables war-fighters to digitally communicate North Atlantic Treaty Organization (NATO) Allied/Coalition and US-Only information necessary to execute and plan in a real-time operational environment without relying on ashore application server interaction. This RF Network separately supports US-Only Carrier and Expeditionary Strike Group Commanders and maintains the digital communication ability to execute and plan with other U.S. ships, submarines or aircraft, as well as with NATO Allied/Coalition networks, even if Satellite Communication (SATCOM) channels to shore are lost. This system is formally specified by both Fleet Commanders as a threshold capability for global maritime command control and communications in a Distributed Maritime Environment to execute current warfighting plans.

Automated Digital Network System (ADNS) provides routing, switching, baseband, configuration and monitoring capabilities for interconnecting naval, coalition and joint enclaves worldwide. ADNS utilizes off the shelf equipment and network protocols as specified by the Joint Technical Architecture. ADNS Increment (INC) III combines all Navy Tactical Voice, Secure Communications Interoperability Protocol (SCIP) Inter-Working Function, video, and data requirements into a converged Internet Protocol (IP) data stream. ADNS INC III supports higher bandwidth satellites, providing up to 25 megabytes per second (Mbps) of throughput on Unit Level ships and up to 50 Mbps on Force Level ships. ADNS INC III architecture also incorporates an IPv4/IPv6 dual stack and Cipher-Text (CT) security architecture to align to the Global Information Grid (GIG) in order to mesh Navy Tactical surface, subsurface, airborne platforms, and Aegis Ashore sites into single IP environments with gateway functions to coalition and joint networks, in addition to greater security utilizing the High Assurance Internet Protocol Encryptor (HAIZE) devices. ADNS will serve as the Navy tactical interface for IP Networking for not only the JALN-M system but also the key Assured Command and Control (C2) capabilities. ADNS will investigate emerging technologies to integrate with additional Department of Defense PEO (Program Executive Office) Command, Control, Communications, Computers & Intelligence (C4I) Programs to improve inter-strike group networking and extend the network to the tactical edge.

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

	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: Battle Force Tactical Network (BFTN)	0.500	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204163N / <i>Fleet Tactical Development</i>	Project (Number/Name) 0725 / <i>Communication Automation</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
<p>Description: Overall program efforts include investigation of emerging technologies through study, development and associated testing for feasibility of program insertion. BFTN is the Navy's program of record for high-frequency internet protocol (HFIP) and Ultra High Frequency (UHF) Line of Sight (LOS) subnet relay (SNR) communications. BFTN is the only Allied/Coalition option, providing command and control in a non-satellite communications (SATCOM) or near-term and future communication threats and serves as a primary backup for SIPRNET (Secret Internet Protocol Router Network) in the absence of SATCOM.</p> <p>FY 2020 Plans: FY20 funding has been realigned to PE 0604280N Project 0725 as part of PE Consolidation.</p> <p>FY 2021 Base Plans: FY21 funding has been realigned to PE 0604280N Project 0725 as part of PE Consolidation.</p> <p>FY 2021 OCO Plans: N/A</p>					
<p>Title: Automated Digital Network System (ADNS)</p> <p align="right">Articles:</p> <p>FY 2020 Plans: FY20 funding has been realigned to PE 0303138N Project 0725 as part of PE Consolidation.</p> <p>FY 2021 Base Plans: FY21 funding has been realigned to PE 0303138N Project 0725 as part of PE Consolidation.</p> <p>FY 2021 OCO Plans: N/A</p>	1.113 -	0.000 -	0.000 -	0.000 -	0.000 -
Accomplishments/Planned Programs Subtotals	1.613	0.000	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• OPN/3057: <i>Battle Force Tactical Network (BFTN)</i>	9.723	12.196	19.969	-	19.969	21.460	9.979	10.101	10.287	Continuing	Continuing
• OPN/3050: <i>Automated Digital Network System (ADNS)</i>	109.152	137.861	123.287	-	123.287	95.116	97.224	90.079	93.067	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy	Date: February 2020
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Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204163N / <i>Fleet Tactical Development</i>	Project (Number/Name) 0725 / <i>Communication Automation</i>
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2019	FY 2020	FY 2021			FY 2022	FY 2023	FY 2024	FY 2025	Cost To	
			Base	OCO	Total					Complete	Total Cost
• RDTEN/0604280N/0725: <i>Battle Force Tactical Network (BFTN)</i>	0.000	3.114	8.880	-	8.880	9.955	13.218	8.854	0.773	Continuing	Continuing
• RDTEN/0303138N/0725: <i>Automated Digital Network System (ADNS)</i>	0.000	0.821	6.847	-	6.847	5.872	5.890	0.936	0.956	Continuing	Continuing

Remarks

D. Acquisition Strategy

Battle Force Tactical Network (BFTN) - Completion of Full Rate Production (FRP) decision enabling the program to move forward with fielding additional systems.

Automated Digital Network System (ADNS): Evolutionary acquisition approach with overlapping development and implementation phases for defined Increment (INC) I, II, and III baselines. INC I, II, and III will use competitively awarded contracts to implement changes consistent with acquisition initiatives. ADNS leverages Commercial-Off-The-Shelf (COTS) and Government Off-the-Shelf (GOTS) products while capitalizing on acquisition reform initiatives to achieve material savings in the logistics, installation, integration and training areas. Where feasible, differing types of advantageous contract vehicles will be used to provide flexibility, decrease contract administrative costs, and encourage acquisition streamlining through the use of COTS/GOTS products.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy **Date:** February 2020

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204163N / <i>Fleet Tactical Development</i>	Project (Number/Name) 0725 / <i>Communication Automation</i>
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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Product Development	Various	Various : Various	62.126	0.000		0.000		0.000		-		0.000	0.000	62.126	-
Systems Engineering-ADNS	WR	NIWC : PAC/LANT	25.837	0.779	Dec 2018	0.000		0.000		-		0.000	0.000	26.616	-
Systems Engineering-ADNS	WR	NUWC : Newport, RI	3.831	0.166	Dec 2018	0.000		0.000		-		0.000	0.000	3.997	-
System Engineering-ADNS	C/CPFF	NUWC : Newport, RI	0.301	0.041	Mar 2019	0.000		0.000		-		0.000	0.000	0.342	-
Integration and Test-ADNS	C/CPFF	NIWC : PAC	0.178	0.041	Mar 2019	0.000		0.000		-		0.000	0.000	0.219	-
System Engineering JALN-M	MIPR	GTRI : Atlanta, GA	1.500	0.000		0.000		0.000		-		0.000	0.000	1.500	-
Primary Hardware/Software - JALN-M	C/FFP	MIT/Lincoln Lab : Lexington MA	77.129	0.000		0.000		0.000		-		0.000	0.000	77.129	-
System Engineering JALN-M	C/CPFF	STF : San Diego, CA	5.194	0.000		0.000		0.000		-		0.000	0.000	5.194	-
System Engineering JALN-M	WR	NIWC : PAC	5.630	0.000		0.000		0.000		-		0.000	0.000	5.630	-
Subtotal			181.726	1.027		0.000		0.000		-		0.000	0.000	182.753	N/A

Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Support	Various	Various : Various	11.701	0.000		0.000		0.000		-		0.000	0.000	11.701	-
System Engineering BFTN	WR	NIWC : LANT	0.892	0.193	Dec 2018	0.000		0.000		-		0.000	0.000	1.085	-
System Engineering BFTN	C/CPFF	STF : San Diego, CA	0.948	0.000		0.000		0.000		-		0.000	0.000	0.948	-
Travel - JALN-M	WR	PMW 170 : San Diego, CA	0.050	0.000		0.000		0.000		-		0.000	0.000	0.050	-
Studies and Analysis BFTN	WR	NIWC : PAC	0.604	0.000		0.000		0.000		-		0.000	0.000	0.604	-
System Engineering BFTN	WR	NIWC : PAC	1.312	0.302	Dec 2018	0.000		0.000		-		0.000	0.000	1.614	-
Logistics Support BFTN	C/CPFF	CSA : San Diego, CA	0.799	0.000		0.000		0.000		-		0.000	0.000	0.799	-
Development Support - JALN-M	C/CPFF	BAH : San Diego	5.637	0.000		0.000		0.000		-		0.000	0.000	5.637	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy												Date: February 2020				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
1319 / 7				PE 0204163N / Fleet Tactical Development				0725 / Communication Automation								
Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Development Support - JALN-M	WR	NIWC : PAC	4.004	0.000		0.000		0.000		-		0.000	0.000	4.004	-	
Financial Management Support - JALN-M	C/CPFF	Artemis : San Diego, CA	1.133	0.000		0.000		0.000		-		0.000	0.000	1.133	-	
Certification Authority-ADNS	C/CPFF	BAH : San Diego, CA	0.327	0.086	Jan 2019	0.000		0.000		-		0.000	0.000	0.413	-	
Subtotal			27.407	0.581		0.000		0.000		-		0.000	0.000	27.988	N/A	
Test and Evaluation (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Test and Evaluation	Various	Various : Various	22.977	0.000		0.000		0.000		-		0.000	0.000	22.977	-	
Integration and Test BFTN	C/FFP	COMOPTEVOR : Norfolk, VA	2.269	0.005	Jan 2019	0.000		0.000		-		0.000	0.000	2.274	-	
Test and Evaluation Support BFTN	WR	NIWC : PAC	9.550	0.000		0.000		0.000		-		0.000	0.000	9.550	-	
Subtotal			34.796	0.005		0.000		0.000		-		0.000	0.000	34.801	N/A	
Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Program Management Support - JALN-M	C/CPFF	BAH : San Diego, CA	0.250	0.000		0.000		0.000		-		0.000	0.000	0.250	-	
Program Management Support - BFTN	C/CPFF	BAH : San Diego, CA	2.822	0.000		0.000		0.000		-		0.000	0.000	2.822	-	
Program Management Support JALN-M	C/CPFF	BAH : San Diego, CA	0.987	0.000		0.000		0.000		-		0.000	0.000	0.987	-	
Subtotal			4.059	0.000		0.000		0.000		-		0.000	0.000	4.059	N/A	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy **Date:** February 2020

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204163N / <i>Fleet Tactical Development</i>	Project (Number/Name) 0725 / <i>Communication Automation</i>
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	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	247.988	1.613	0.000	0.000	-	0.000	0.000	249.601	N/A

Remarks
FY20 and FY21 cost data is provided under PE 0604280N Project 0725 and PE 0303138N Project 0725.

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy **Date:** February 2020

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204163N / <i>Fleet Tactical Development</i>	Project (Number/Name) 0725 / <i>Communication Automation</i>
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BFTN

Fiscal Year	2019				2020				2021				2022				2023				2024				2025			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones	◆ LRIP Fielding Decision																											
System Engineering																												
Test & Certification Events	<div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 80%;"> Efforts in FY20 and out are funded under PE 0604280N Project 0725 (new PE/Project) </div>																											
Contracts / Installation	<p> Follow-On DT (arrow from Q1 2019 to Q2 2019) Grooming for FOT&E (arrow from Q2 2019 to Q3 2019) FOT&E (diamond at Q3 2019) VCD Report (diamond at Q4 2019) BFTN System Procurement - New Contract (bar from Q3 2019 to Q4 2019) BFTN System Installations (bar from Q1 2019 to Q4 2019) </p>																											

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy **Date:** February 2020

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204163N / <i>Fleet Tactical Development</i>	Project (Number/Name) 0725 / <i>Communication Automation</i>
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EXHIBIT R-4, RDT&E Schedule Profile: PB 2021 DATE:
December 2019

Appropriation/Budget Activity 1319 / 07	R-1 Program Element PE 0204163N / Fleet Tactical Development	PROJECT NUMBER AND NAME 0725 - Communication Automation - ADNS
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ADNS

Fiscal Year	2019				1Q	2020				2021				2022				2023				2024				2025						
	1Q	2Q	3Q	4Q		1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q			
Acquisition Milestones				INC III ILA-S/ PSR 					FY20 to FY25 funding has been realigned to PE 0303138N Project 0725 as part of PE consolidation																							
System Development	Interface Design Development & Integration with Network Applications and DISN																															
	Interface Design Development & Integration with Future SATCOM and Radio Frequency (RF) paths																															
Test & Evaluation Milestones																																
Operational Assessment (OA) Development Test Operational Test																																
Production																																
	Fielding & Sustainment INC III Surface																															
	Fielding & Sustainment INC III Subs																															
Deliveries																																

EXHIBIT R4, Schedule Profile

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Navy **Date:** February 2020

Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204163N / <i>Fleet Tactical Development</i>	Project (Number/Name) 0725 / <i>Communication Automation</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>BFTN</i>				
BFTN System Installations	1	2019	4	2019
Low Rate Initial Production (LRIP) Fielding Decision	1	2019	1	2019
Follow-On Developmental Test (DT)	1	2019	2	2019
Grooming for Follow-On Test & Evaluation (FOT&E)	2	2019	3	2019
FOT&E	4	2019	4	2019
FOT&E Test Report	4	2019	4	2019
Full Rate Production - Decision Review (FRP-DR)	4	2019	4	2019
BFTN System Procurement Follow-on Contract	4	2019	4	2019
<i>ADNS</i>				
System Development: ADNS: Increment III_Interface Design Development and Integration with Network Applications and Defense Information Systems Network (DISN)	1	2019	4	2019
System Development: ADNS: Increment III_Interface Design Development and Integration with SATCOM and Radio Frequency (RF) paths	1	2019	4	2019
Production: ADNS: Increment III_Fielding and Sustainment INC III Surface	1	2019	4	2019
Production: ADNS: Increment III_Fielding and Sustainment INC III Submarines	1	2019	4	2019
Acquisition Milestones: ADNS: Increment III Product Support Review	4	2019	4	2019