

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy										Date: March 2014		
Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy / BA 7: Operational Systems Development					R-1 Program Element (Number/Name) PE 0101402N / Navy Strategic Comms							
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	402.959	17.461	21.723	13.676	-	13.676	13.174	12.889	12.779	16.051	Continuing	Continuing
1083: Shore To Ship Com System	133.562	16.348	21.723	13.180	-	13.180	12.670	12.376	12.257	15.519	Continuing	Continuing
3002: Navy Strategic Comm Project	269.397	1.113	-	0.496	-	0.496	0.504	0.513	0.522	0.532	Continuing	Continuing

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

The Shore to Ship Communications System develops communication system elements which provide Nuclear Command, Control and Communications (NC3) from originator to execution platforms. The Shore to Ship Communications System provides continuous assessment of the command and control links between the National Command Authority and missile platforms and which is conducted to ensure compliance with Nuclear Command and Control System Technical Performance Criteria (NTPC).

The Shore to Ship Communications System addresses joint system design issues for Emergency Action Message (EAM) distribution to all nuclear platforms and provides evaluation of joint interoperability of EAM delivery systems. Tools are developed to provide strategic command and control planning within the submarine shore infrastructure to support deployed ballistic missile submarines.

The Navy Strategic Communications Project responds to emerging E-6B Command, Control and Communications capability requirements by performing technical evaluations, modeling and simulation, investigative ground and flight testing, enhanced software modifications and development of configuration modifications. The E-6B is a manned airborne platform that provides survivable, enduring and reliable Command, Control and Communications capability in support of the President, Secretary of Defense and United States strategic and non-strategic forces. These efforts support follow-on aircraft modification procurements necessary to ensure interoperability in information-assured network-centric strategic environments.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy				Date: March 2014	
Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy / BA 7: Operational Systems Development		R-1 Program Element (Number/Name) PE 0101402N / Navy Strategic Comms			
B. Program Change Summary (\$ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	19.208	21.729	14.285	-	14.285
Current President's Budget	17.461	21.723	13.676	-	13.676
Total Adjustments	-1.747	-0.006	-0.609	-	-0.609
• Congressional General Reductions	-	-0.006			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.187	-			
• SBIR/STTR Transfer	-0.325	-			
• Program Adjustments	-	-	1.471	-	1.471
• Rate/Misc Adjustments	-0.001	-	-2.080	-	-2.080
• Congressional General Reductions Adjustments	-1.608	-	-	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy										Date: March 2014		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0101402N / Navy Strategic Comms				Project (Number/Name) 1083 / Shore To Ship Com System			
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
1083: Shore To Ship Com System	133.562	16.348	21.723	13.180	-	13.180	12.670	12.376	12.257	15.519	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		
# The FY 2015 OCO Request will be submitted at a later date.												
A. Mission Description and Budget Item Justification												
The Shore to Ship Communication System develops communication elements which provide Nuclear Command, Control and Communications (NC3) from originator to execution platforms. This portfolio of programs provides design and developments for shore-to-ship transmit and receive communications systems.												
The Low Band Universal Communications System (LBUCS) is a modernization program that will upgrade the transmit and receive subsystems of the Fixed Submarine Broadcast System (FSBS) which are approaching their operational end of life. LBUCS will ensure operational capability through the Very Low Frequency (VLF) architecture by providing system life extension and flexibility of submarine broadcast traffic to submarines operating in a stealth posture. The flexibility includes enhanced throughput and anti-jam capability, ensuring more operational products are delivered to a submarine without risking mast exposure. The flexibility further includes a simplified shore architecture to maintain capability while maximizing use of shore nodes (Broadcast Keying Sites). LBUCS also provides an upgrade to the VLF receive system, with all interoperable waveforms, to ensure continued compliance with Nuclear Command and Control System Technical Performance Criteria (NTPC).												
The Strategic Communications Assessment Program/Continued Evaluation Program provides constant assessment of the effectiveness of the end-to-end NC3 network and analysis of system performance in various mission locations.												
Technologies to improve high voltage insulators, helix house bushings and antenna components used in the fixed VLF transmit systems are evaluated and tested through the High Voltage Improvement Program (HVIP). Development of information assurance solutions for the Broadcast Control Authority (BCA) and Submarine Operating Authority (SUBOPAUTH) Wide Area Network (SWAN) are part of this program to mitigate vulnerability concerns.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)									FY 2013	FY 2014	FY 2015	
Title: Low Band Universal Communication System (LBUCS)									11.812	16.775	8.227	
									Articles: -	-	-	
FY 2013 Accomplishments:												
-Commenced Submarine Operating Authority (SUBOPAUTH) Wide Area Network (SWAN) Information Assurance (IA) upgrade development.												
-Continued statutory and regulatory acquisition documentation in preparation for Low Band Universal Communications System (LBUCS) Transmit Milestone C including the Capability Production Document (CPD).												
-Commenced LBUCS Transmit Engineering Design Model (EDM) Developmental Testing (DT) and Operational Assessment (OA).												
-Commenced LBUCS Receive development.												

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014		
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101402N / Navy Strategic Comms	Project (Number/Name) 1083 / Shore To Ship Com System		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2013	FY 2014	FY 2015
<p>-Commenced development of a new Very Low Frequency (VLF) mode, which will be incorporated into the Low Band Universal Communication System (LBUCS) Receive development effort.</p> <p>FY 2014 Plans:</p> <p>-Continue Submarine Operating Authority (SUBOPAUTH) Wide Area Network (SWAN) Information Assurance (IA) upgrade development.</p> <p>-Complete statutory and regulatory acquisition documentation in preparation for LBUCS Transmit Milestone C including the Capability Production Document (CPD).</p> <p>-Complete LBUCS Transmit Engineering Design Model (EDM) Developmental Test (DT) and Operational Assessment (OA).</p> <p>-Complete LBUCS Transmit Milestone C.</p> <p>-Commence Low Band Universal Communication System (LBUCS) Transmit Low Rate Initial Production (LRIP) procurement.</p> <p>-Continue LBUCS Receive development.</p> <p>-Continue development of a new Very Low Frequency (VLF) Mode which, will be incorporated into the LBUCS Receive development effort.</p> <p>-Commence and complete LBUCS Receive Preliminary Design Review (PDR) and Critical Design Review (CDR).</p> <p>FY 2015 Plans:</p> <p>-Continue SWAN IA upgrade development.</p> <p>-Complete LBUCS Transmit LRIP procurement.</p> <p>-Commence LBUCS Transmit LRIP Developmental Testing (DT-C1)/Integration Testing (DT-C2)/Operational Testing (OT).</p> <p>-Commence and complete LBUCS Transmit LRIP installation.</p> <p>-Complete LBUCS Receive development.</p> <p>-Commence LBUCS Receive DT/OA.</p> <p>-Complete development of new VLF mode.</p>				
<p>Title: Strategic Communications Assessment Program (SCAP)/Continuing Evaluation Program (CEP)</p> <p>Articles:</p> <p>FY 2013 Accomplishments:</p> <p>-Continued mission analysis of Ship Submersible Ballistic Nuclear (SSBN) Emergency Action Message (EAM) reception for SSBN patrols.</p> <p>-Continued development of automated data collection and analysis tools to reduce latency time between missions and results availability.</p> <p>-Commenced and completed reports on performance, adherence to delivery time requirements and shortfalls.</p> <p>FY 2014 Plans:</p> <p>-Continue mission analysis of Ship Submersible Ballistic Nuclear (SSBN) Emergency Action Message (EAM) reception for SSBN patrols.</p>		3.084 -	3.811 -	3.439 -

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014		
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101402N / Navy Strategic Comms	Project (Number/Name) 1083 / Shore To Ship Com System		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2013	FY 2014	FY 2015
<div>-Continue development of automated data collection and analysis tools to reduce latency time between missions and results availability.</div> <div>-Commence and complete reports on performance, adherence to delivery time requirements and shortfalls.</div> <div>FY 2015 Plans:</div> <div>-Continue mission analysis of SSBN EAM reception for SSBN patrols.</div> <div>-Complete development of automated data collection and analysis tools to reduce latency time between missions and results availability.</div> <div>-Commence and complete reports on performance, adherence to delivery time requirements and shortfalls.</div>				
<div>Title: Concept Development/Systems Planning</div> <div>Articles:</div> <div>FY 2013 Accomplishments:</div> <div>-Completed integration of Joint/Allied Network Enabled Operation (NEO) with Command, Control, Communications, Computers, and Intelligence (C4I) applications</div> <div>-Completed United States / United Kingdom NEO demonstrations.</div> <div>FY 2014 Plans:</div> <div>N/A</div> <div>FY 2015 Plans:</div> <div>N/A</div>		0.450 -	- -	- -
<div>Title: High Voltage Improvement Program (HVIP)</div> <div>Articles:</div> <div>FY 2013 Accomplishments:</div> <div>-Completed examination of aging laminated wood used in Very Low Frequency (VLF)/Low Frequency (LF) Helix Houses.</div> <div>-Completed examination of aging multi-conductor High Q inductor cable used in Very Low Frequency (VLF)/Low Frequency (LF) Helix Houses.</div> <div>FY 2014 Plans:</div> <div>-Commence examination of innovative lighting methods for high voltage Very Low Frequency (VLF)/Low Frequency (LF) towers.</div> <div>-Commence analysis of sulfur hexafluoride (SF6) breakdown in high voltage fields.</div> <div>FY 2015 Plans:</div> <div>-Complete examination of innovative lighting methods for high voltage VLF/LF towers.</div> <div>-Complete analysis of sulfur hexafluoride (SF6) breakdown in high voltage fields.</div>		0.737 -	0.835 -	1.136 -

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy								Date: March 2014			
Appropriation/Budget Activity 1319 / 7				R-1 Program Element (Number/Name) PE 0101402N / Navy Strategic Comms				Project (Number/Name) 1083 / Shore To Ship Com System			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2013	FY 2014	FY 2015	
-Commence examination of methods for reducing risk of fire or damage by detection of partial discharge in Helix Houses.											
Title: Broadcast Control Authority (BCA)								0.265	0.302	0.378	
Articles:								-	-	-	
FY 2013 Accomplishments: -Continued development of the Submarine Operating Authority (SUBOPAUTH) communications tools to include: file repository, Operation Schedule (OpSked) Editor, Submarine Notes (SubNotes) Editor, and Web Off The Air Monitor (WebOTAM). -Commenced systems engineering support for Information Assurance (IA) improvements.											
FY 2014 Plans: -Complete development of SUBOPAUTH communications tools including: file repository, OpSked Editor, SubNotes Editor, and WebOTAM. -Continue systems engineering support for Information Assurance (IA) improvements.											
FY 2015 Plans: -Commence development of Submarine Operating Authority (SUBOPAUTH) Wide Area Network (SWAN) hardening prototype system (lab) -Continue systems engineering support for Information Assurance (IA) improvements.											
Accomplishments/Planned Programs Subtotals								16.348	21.723	13.180	
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• OPN/3107: Submarine Broadcast	3.650	7.856	11.057	-	11.057	18.479	15.844	17.974	18.340	Continuing	Continuing
Remarks											
D. Acquisition Strategy											
Low Band Universal Communications System (LBUCS): LBUCS is the modernization program that will upgrade the Transmit and Receive subsystems of the Fixed Submarine Broadcast System (FSBS) which are approaching their operational end of life. The development of LBUCS Receive continues in FY15.											
E. Performance Metrics											
LBUCS FY15: LBUCS Transmit complete Low Rate Initial Procurement (LRIP) procurement and installation.											
Strategic Communications Assessment Program (SCAP)/Continuing Evaluation Program (CEP) FY15: Delivery of Submersible Ballistic Nuclear Submarine (SSBN) patrol reports.											

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
1319 / 7	PE 0101402N / Navy Strategic Comms	1083 / Shore To Ship Com System
<p>High Voltage Improvement Program (HVIP) FY15: Complete examination of innovative lighting methods for high voltage Very Low Frequency (VLF)/Low Frequency (LF) towers.</p> <p>Broadcast Control Authority (BCA) FY15: Complete Information Assurance (IA) assessment reports.</p>		

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy

Date: March 2014

Appropriation/Budget Activity

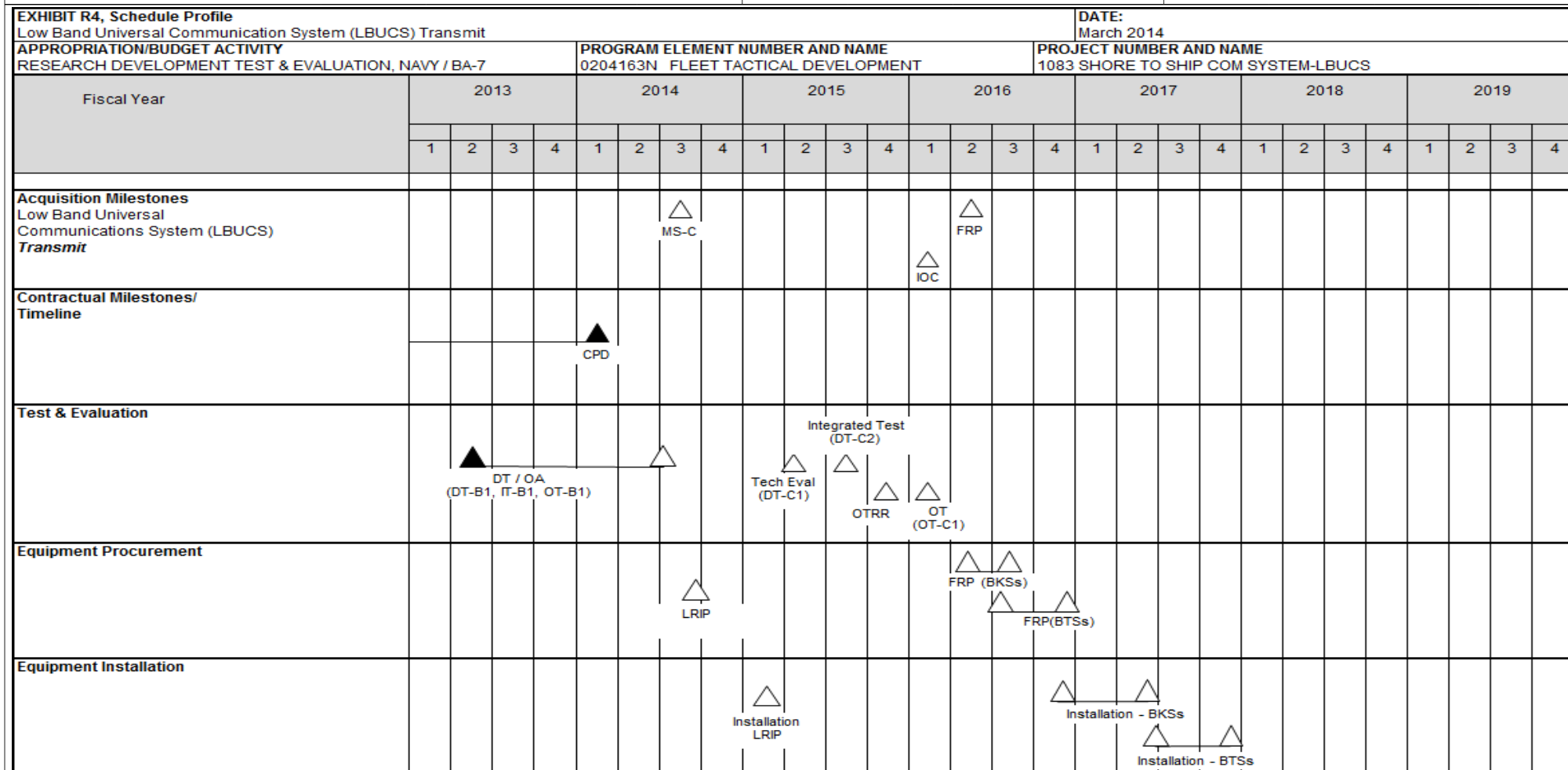
1319 / 7

R-1 Program Element (Number/Name)

PE 0101402N / Navy Strategic Comms

Project (Number/Name)

1083 / Shore To Ship Com System



UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy

Date: March 2014

Appropriation/Budget Activity

1319 / 7

R-1 Program Element (Number/Name)

PE 0101402N / Navy Strategic Comms

Project (Number/Name)

1083 / Shore To Ship Com System

EXHIBIT R4, Schedule Profile																DATE: March 2014																												
Low Band Universal Communication System (LBUCS) Receive																PROGRAM ELEMENT NUMBER AND NAME								PROJECT NUMBER AND NAME																				
APPROPRIATION/BUDGET ACTIVITY																0204163N FLEET TACTICAL DEVELOPMENT								1083 SHORE TO SHIP COM SYSTEM-LBUCS																				
RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-7																																												
Fiscal Year	2013				2014				2015				2016				2017				2018				2019																			
	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 Low Band Universal Communications System (LBUCS) <i>Receive</i>																																												
Contractual Milestones/Timeline																																												
Test & Evaluation																																												
Equipment Procurement																																												
Equipment Installation																																												

Note 1: PRA supports DT/OT

UNCLASSIFIED

PE 0101402N: *Navy Strategic Comms* **UNCLASSIFIED**
 Navy Page 10 of 13 R-1 Line #175

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy										Date: March 2014		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0101402N / Navy Strategic Comms				Project (Number/Name) 3002 / Navy Strategic Comm Project			
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
3002: Navy Strategic Comm Project	269.397	1.113	-	0.496	-	0.496	0.504	0.513	0.522	0.532	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		
# The FY 2015 OCO Request will be submitted at a later date.												
A. Mission Description and Budget Item Justification												
The E-6 is a manned airborne platform that provides survivable, endurable and reliable Command, Control and Communications capability in support of the President, Secretary of Defense and United States strategic and non-strategic forces. In order to respond effectively to emerging capability requirements, continued effort is needed to perform technical evaluations, modeling and simulation, investigative ground and flight testing, enhanced software modifications and development of configuration modifications. Funding has been added starting in FY15 for advanced development engineering and analysis of hardware/software required to optimize E-6 systems for interoperability in a network-centric strategic environment.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)									FY 2013	FY 2014	FY 2015	
Title: Conduct Developmental Test (DT) Governmental Training									0.077	-	-	
									Articles: -	-	-	
FY 2013 Accomplishments: Complete Block IA ECP DT Governmental Training efforts.												
FY 2014 Plans: N/A												
FY 2015 Plans: N/A												
Title: Studies & Analysis									-	-	0.496	
									Articles: -	-	-	
FY 2013 Accomplishments: N/A												
FY 2014 Plans: N/A												
FY 2015 Plans:												

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy										Date: March 2014		
Appropriation/Budget Activity 1319 / 7				R-1 Program Element (Number/Name) PE 0101402N / Navy Strategic Comms				Project (Number/Name) 3002 / Navy Strategic Comm Project				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)										FY 2013	FY 2014	FY 2015
Perform and conduct advanced simulations, integrations and demonstrations using E-6B Systems Integration Laboratory and contractor assets of newly developed commercial technology to address system obsolescence and potential upgrades to ensure survivability and reliability of the E-6B platform.												
Title: Prototype Aircraft Installation <div style="text-align: right;">Articles:</div>										1.036 -	- -	- -
FY 2013 Accomplishments: Complete Block IA ECP Prototype Aircraft Installation efforts. FY 2014 Plans: N/A FY 2015 Plans: N/A												
Accomplishments/Planned Programs Subtotals										1.113	-	0.496
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost	
• APN 056400: E-6 A/B Series	140.159	157.549	212.876	-	212.876	196.629	200.303	203.856	178.089	489.546	2,409.771	
Remarks												
D. Acquisition Strategy												
Advanced development engineering and analysis of hardware/software required to optimize E-6 systems for interoperability in a network-centric strategic environment.												
E. Performance Metrics												
Mission Systems Evaluation; Technical Analysis 1st Qtr FY15, Design Analysis 2nd Qtr FY15, SIL Test and Reporting 4th Qtr FY15.												

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy

Date: March 2014

Appropriation/Budget Activity
1319 / 7

R-1 Program Element (Number/Name)
PE 0101402N / Navy Strategic Comms

Project (Number/Name)
3002 / Navy Strategic Comm Project

Proj 3002	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019			
	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
Development																												
Deliveries		APU SIL ◆																										
Test & Evaluation																												
SIL Testing																												
Advanced Development																												
Studies & Analysis																												

2015PB - 0101402N - 3002