Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force

R-1 Program Element (Number/Name)

3600: Research, Development, Test & Evaluation, Air Force I BA 7:

PE 0208088F I AF Defensive Cyberspace Operations

Date: February 2015

Operational Systems Development

Appropriation/Budget Activity

COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
Total Program Element	-	5.853	5.576	7.681	-	7.681	22.474	33.471	31.690	23.614	Continuing	Continuing
677820: Computer Security RDTE: Firestarter	-	5.853	5.576	6.064	-	6.064	2.333	2.373	2.414	2.457	Continuing	Continuing
677821: Cyberspace Vulnerability Assessment	-	-	-	0.143	-	0.143	19.651	19.006	19.641	20.642	Continuing	Continuing
677822: Cyber Defense Analysis	-	-	-	0.252	-	0.252	0.246	2.925	0.258	0.268	Continuing	Continuing
677823: AFCERT	-	-	-	1.222	-	1.222	0.244	9.167	9.377	0.247	Continuing	Continuing

Note

In FY16, this program element includes new start efforts for Cyberspace Vulnerability Assessment, Cyber Defense Analysis, and AFCERT activities.

A. Mission Description and Budget Item Justification

The Firestarter program provides newly improved capabilities and technical transition opportunities for Cyber Defense and Information Assurance (IA) technologies and tools needed to defend Air Force Command, Control, Communications, Computer, and Intelligence (C4I) systems from Cyber-attacks, while ensuring recovery in the event of an attack. The emphasis of the program is directed toward defensive cyberspace capabilities; computer and network systems security; damage assessment and recovery; cyber threat recognition, attribution, and mitigation; and active response methodologies in response to evolving threats and changes to cyber environment. These areas of emphasis are realized through research and development, test and acquisition in the areas of: proactive defense, defensive counter cyberspace, cyberspace intelligence, surveillance and reconnaissance & situational awareness, persistent network operations, as well as decision support, recovery, and digital forensics. Current Air Force systems, such as the AFNET NIPRNet Gateways, SIPRNet Modernization program, and Host Based Security System leverage this technology to meet their information assurance and defensive cyberspace needs/requirements.

Firestarter utilizes cyber and IA technology investments by US Cyber Command, the Defense Advanced Research Projects Agency (DARPA), the National Security Agency (NSA), Director of National Intelligence (DNI), Intelligence Advanced Research Projects Activity (IARPA), and the Department of Homeland Security (DHS) to jump-start its development of solutions to existing Air Force cyber and IA requirements. This program supports AF Space Commands Cyberspace strategic direction in support of Cyber Defense which provides capabilities to 24th AF, as AF component to Cyber Command (CYBERCOM), Defense Information Systems Agency (DISA), National Security Agency (NSA), and other services to ensure Global Information Grid (GIG) cyber and IA requirements are being met. Activities performed include those designed to identify, analyze, test, rapidly acquire, and integrate emerging IA and cyber technology and defensive cyberspace weapons systems and capabilities into all regions of the GIG - terrestrial, airborne, and space systems. In addition, this effort will support implementation of DoD Enterprise-wide IA & Computer Network Defense (CND) Solutions Steering Group (ESSG) solutions.

This requirement is to support the Cyberspace Vulnerability Assessment/ Hunter Team (CVA/H) weapon system development of new capabilities to provide Air Force Cyber Command (AFCYBER) and Combatant Commanders additional mobile precision in addition to currently fielded protection capabilities to identify, pursue,

PE 0208088F: AF Defensive Cyberspace Operations

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R-1 Line #168

Air Force

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force		Date: February 2015
Appropriation/Budget Activity	R-1 Program Element (Number/Name)	
3600: Research, Development, Test & Evaluation, Air Force I BA 7:	PE 0208088F I AF Defensive Cyberspace Operations	
Operational Systems Development		

and mitigate cyberspace threats. The CVA/H weapon system performs defensive sorties world-wide via remote or on-site access. CVA/H executes vulnerability, compliance, defense and non-technical assessments, best practice reviews, penetration testing and Hunter missions on AF and DoD networks & systems. Hunter operations characterize and then eliminate threats for the purpose of mission assurance. The Hunter mission focuses on the capability to find, fix, track, target, engage, and assess (F2T2EA) the advanced persistent threat (APT). This effort funds development efforts to expand the capability of the current weapon system to meet scope and scale of the USCYBERCOM directed Cyber Protection Teams.

Cyberspace Defense Analysis(CDA) is an assessment of non-secure telecommunications to determine type and amount of sensitive and/or classified information that may have been disclosed to our adversaries and encompasses the following mission subsets: Telephony Communications, Radio Frequency (RF) Communications, E-mail Communications, Internet based Capabilities (IbC), Web Risk Assessment (WRA), and Cyber Operations Risk Assessment (CORA). CDA is the cyberspace weapon system that is used to conduct assessments during peace time and contingency operations. CDA shows its true capability in the force protection realm and helps ensure our adversaries are not provided early warning of our plans, capabilities, or limitations.

AF Computer Emergency Response Team (AFCERT) supports the AF Cyberspace Defense (ACD)weapon system is designed to prevent, detect, and respond to adversarial penetration into AF unclassified and classified networks. It also provides forensic analysis if AF unclassified and classified networks are infiltrated by our adversaries. AFCERT funding for this effort will focus on development of capability, capacity, and potential modifications to increase the utility of the ACD weapon system to the warfighter

In FY16 this program element will include funding for Air Force Defensive Cyberspace Operations (1) Firestarter (2) Cyberspace Vulnerability Assessment (3) Cyber Defense Analysis and (4) AFCERT.

Activities include studies and analysis to support both current program planning and execution and future program planning.

These programs are in Budget Activity 7, Operational System Development, because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

PE 0208088F: AF Defensive Cyberspace Operations

Air Force

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Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Air Force

Date: February 2015

Appropriation/Budget Activity

R-1 Program Element (Number/Name)

3600: Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development

PE 0208088F I AF Defensive Cyberspace Operations

B. Program Change Summary (\$ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	5.853	5.576	32.500	-	32.500
Current President's Budget	5.853	5.576	7.681	-	7.681
Total Adjustments	-	-	-24.819	-	-24.819
 Congressional General Reductions 	-	-			
 Congressional Directed Reductions 	-	-			
 Congressional Rescissions 	-	-			
 Congressional Adds 	-	-			
 Congressional Directed Transfers 	-	-			
Reprogrammings	-	-			
SBIR/STTR Transfer	-	-			
Other Adjustments	-	-	-24.819	-	-24.819

Change Summary Explanation

The FY2016 funding request was reduced by \$24.819M in support of higher Air Force priorities.

PE 0208088F: AF Defensive Cyberspace Operations

Air Force

Exhibit R-2A, RDT&E Project J	ustification	: PB 2016 A	ir Force							Date: Febr	uary 2015	
Appropriation/Budget Activity 3600 / 7		, , ,						Number/Name) Computer Security RDTE: r				
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
677820: Computer Security RDTE: Firestarter	-	5.853	5.576	6.064	-	6.064	2.333	2.373	2.414	2.457	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Firestarter program provides newly improved capabilities and technical transition opportunities for Cyber Defense and Information Assurance (IA) technologies and tools needed to defend Air Force Command, Control, Communications, Computer, and Intelligence (C4I) systems from Cyber-attacks, while ensuring recovery in the event of an attack. The emphasis of the program is directed toward defensive cyberspace capabilities; computer and network systems security; damage assessment and recovery; cyber threat recognition, attribution, and mitigation; and active response methodologies in response to evolving threats and changes to cyber environment. These areas of emphasis are realized through research and development, test and acquisition in the areas of: proactive defense, defensive counter cyberspace, cyberspace intelligence, surveillance and reconnaissance & situational awareness, persistent network operations, as well as decision support, recovery, and digital forensics. Current Air Force systems, such as the AFNET NIPRNet Gateways, SIPRNet Modernization program, and Host Based Security System leverage this technology to meet their information assurance and defensive cyberspace needs/requirements.

Firestarter utilizes cyber and IA technology investments by US Cyber Command, the Defense Advanced Research Projects Agency (DARPA), the National Security Agency (NSA), Director of National Intelligence (DNI), Intelligence Advanced Research Projects Activity (IARPA), and the Department of Homeland Security (DHS) to jump-start its development of solutions to existing Air Force cyber and IA requirements. This program supports AF Space Commands Cyberspace strategic direction in support of Cyber Defense which provides capabilities to 24th AF, as AF component to Cyber Command (CYBERCOM), Defense Information Systems Agency (DISA), National Security Agency (NSA), and other services to ensure Global Information Grid (GIG) cyber and IA requirements are being met. Activities performed include those designed to identify, analyze, test, rapidly acquire, and integrate emerging IA and cyber technology and defensive cyberspace weapons systems and capabilities into all regions of the GIG - terrestrial, airborne, and space systems. In addition, this effort will support implementation of DoD Enterprise-wide Information Assurance (IA) & Computer Network Defense (CND) Solutions Steering Group (ESSG) solutions.

This requirement is to support the Cyberspace Vulnerability Assessment/ Hunter Team (CVA/H) weapon system development of new capabilities to provide Air Force Cyber Command (AFCYBER) and Combatant Commanders additional mobile precision in addition to currently fielded protection capabilities to identify, pursue, and mitigate cyberspace threats. The CVA/H weapon system performs defensive sorties world-wide via remote or on-site access. CVA/H executes vulnerability, compliance, defense and non-technical assessments, best practice reviews, penetration testing and Hunter missions on AF and DoD networks & systems. Hunter operations characterize and then eliminate threats for the purpose of mission assurance. The Hunter mission focuses on the capability to find, fix, track, target, engage, and assess (F2T2EA) the advanced persistent threat (APT). This effort funds development efforts to expand the capability of the current weapon system to meet scope and scale of the USCYBERCOM directed Cyber Protection Teams.

Cyberspace Defense Analysis (CDA) is an assessment of non-secure telecommunications to determine type and amount of sensitive and/or classified information that may have been disclosed to our adversaries and encompasses the following mission subsets: Telephony Communications, Radio Frequency (RF) Communications,

PE 0208088F: AF Defensive Cyberspace Operations Air Force

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (N	umber/Name)
3600 / 7	PE 0208088F I AF Defensive Cyberspace	677820 / C	Computer Security RDTE:
	Operations	Firestarter	

E-mail Communications, Internet based Capabilities (IbC), Web Risk Assessment (WRA), and Cyber Operations Risk Assessment (CORA). CDA is the cyberspace weapon system that is used to conduct assessments during peace time and contingency operations. CDA shows its true capability in the force protection realm and helps ensure our adversaries are not provided early warning of our plans, capabilities, or limitations.

AF Computer Emergency Response Team (AFCERT) supports the AF Cyberspace Defense (ACD) weapon system is designed to prevent, detect, and respond to adversarial penetration into AF unclassified and classified networks. It also provides forensic analysis if AF unclassified and classified networks are infiltrated by our adversaries. AFCERT funding for this effort will focus on development of capability, capacity, and potential modifications to increase the utility of the ACD weapon system to the warfighter.

Activities include studies and analysis to support both current program planning and execution and future program planning.

These programs are in Budget Activity 7, Operational System Development, because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Title: Cyber Forensic Tools & Methodologies	2.040	1.655	1.742
Description: Cyber forensic tools & methodologies. Includes: Initial metrics for reliable info assurance; secure coalition cyber data management, collaboration and visualization; analysis of cyber security bots.			
FY 2014 Accomplishments: Efforts continued the development of methods and technologies to enhance "real time" cyber network forensic analysis.			
FY 2015 Plans: Continue the development of methods and technologies to enhance "real time" cyber network forensic analysis.			
FY 2016 Plans: Will continue the development of methods and technologies to enhance "real time" cyber network forensic analysis.			
Title: Cyber Threat Recognition	1.357	1.375	1.508
Description: Enhancing cyber platform technology to identify zero-day threats in real time.			
FY 2014 Accomplishments: Effort continued development of technologies to detect and attribute distributed computer network attacks over time and distance to specific adversaries.			
FY 2015 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: F	ebruary 2015	
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208088F I AF Defensive Cyberspace Operations	Project 67782 Firesta	TE:		
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2014	FY 2015	FY 2016
Continue development of technologies to detect and attribute distrispecific adversaries.	ibuted computer network attacks over time and distance to)			
FY 2016 Plans: Will continue development of technologies to detect and attribute of specific adversaries.	distributed computer network attacks over time and distant	ce to			
Title: Cyber Threat Attribution & Mitigation			1.462	1.482	1.61
Description: Includes: risk mitigation techniques for wireless netwand computer/net attack attribution efforts.	orks and systems; active response, dynamic policy enforc	ement			
FY 2014 Accomplishments: Effort continued development of technologies to detect and attribut to specific adversaries.	te distributed computer network attacks, over time and dis	tance,			
FY 2015 Plans: Continue development of technologies to detect and attribute distrispecific adversaries.	ibuted computer network attacks, over time and distance,	to			
FY 2016 Plans: Will continue development of technologies to detect and attribute of specific adversaries.	distributed computer network attacks, over time and distan	ce, to			
Title: Transition of Cyber and IA Technologies			0.994	1.064	1.199
Description: Transition cyber defense technologies that support A solutions; terrestrial net defense technology development; airborne secure interoperable distributed agent computing, and others that	e IP network cyber and IA tools; IA / cyber modeling & sim				
FY 2014 Accomplishments: Effort continued enhancing and transitioning customer funded cyber accordance with rapid requirements documentation provided by Al					
FY 2015 Plans: Continue enhancing and transitioning customer funded cyber and with rapid requirements documentation provided by AFSPC.	IA technology to operational USAF components in accord	ance			
FY 2016 Plans:					
		1	1	1	

PE 0208088F: *AF Defensive Cyberspace Operations* Air Force

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force		Date: F	ebruary 2015	5
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208088F I AF Defensive Cyberspace Operations	ect (Number/l 20 / Compute tarter	,	TE:
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2014	FY 2015	FY 2016

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Will continue enhancing and transitioning customer funded cyber and IA technology to operational USAF components in accordance with rapid requirements documentation provided by AFSPC.			
Accomplishments/Planned Programs Subtotals	5.853	5.576	6.064

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

			FY 2016	FY 2016	FY 2016					Cost To	
Line Item	FY 2014	FY 2015	Base	<u>000</u>	<u>Total</u>	FY 2017	FY 2018	FY 2019	FY 2020	Complete	Total Cost
• N/A: <i>N/A</i>	_	_	_	_	_	_	_	_	_	_	-

Remarks

D. Acquisition Strategy

All major contracts within this project are awarded using full and open competition, and utilize evolutionary capability and incremental development.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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get Activity	/				PE 020	8088F <i>I A</i>	•		•	677820	Ì Compu		ty RDTE:	
ent (\$ in M	illions)		FY 2	2014	FY 2	2015					FY 2016 Total			
Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To	Total Cost	Target Value of Contract
C/CPFF	Various : Various,	-	0.800	Jan 2014	0.824	Jan 2015	0.849	Jan 2016	-		0.849	Continuing	Continuing	-
C/CPFF	Various : Various,	-	3.477	Jan 2014	3.315	Jan 2015	3.624	Jan 2016	-		3.624	Continuing	Continuing	-
C/CPFF	Various : Various,	-	1.176	Jan 2014	1.025	Jan 2015	1.167	Jan 2016	-		1.167	Continuing	Continuing	-
	Subtotal	-	5.453		5.164		5.640		-		5.640	-	-	-
multiple unive				n contractors		rsities. Each				ending on v	1	-	-	
	ent (\$ in M Contract Method & Type C/CPFF C/CPFF C/CPFF	ent (\$ in Millions) Contract Method & Type Activity & Location C/CPFF Various: Various, C/CPFF Various: Various, C/CPFF Various: Various, Subtotal	ent (\$ in Millions) Contract Method & Performing Activity & Location Years C/CPFF Various: Various, - C/CPFF Various: Various, - C/CPFF Various: Various, - Subtotal -	ent (\$ in Millions) Contract Method Performing A Type Activity & Location Years Cost C/CPFF Various: Various, - 0.800 C/CPFF Various: Various, - 3.477 C/CPFF Various: Various, - 1.176 Subtotal - 5.453 multiple universities reflect on-going efforts with over a dozer	ent (\$ in Millions) Contract Method & Performing Activity & Location Years C/CPFF Various: Various, - 0.800 Jan 2014 C/CPFF Various: Various, - 3.477 Jan 2014 C/CPFF Various: Various, - 1.176 Jan 2014 Subtotal - 5.453 multiple universities reflect on-going efforts with over a dozen contractors	rent (\$ in Millions) FY 2014 FY 2 Contract Method & Performing Activity & Location C/CPFF Various: Various, C/CPFF Va	R-1 Program Ele PE 0208088F / A Operations ent (\$ in Millions) FY 2014 FY 2015 Contract Method & Type Activity & Location Years Cost Date C/CPFF Various: Various, C/	R-1 Program Element (N PE 0208088F / AF Defens Operations ent (\$ in Millions) FY 2014 FY 2015 FY 2015 Ba Contract Method & Performing & Prior Method & Type Activity & Location Years C/CPFF Various: Various, - 0.800 Jan 2014 C/CPFF Various: Various, - 0.800 Jan 2014 C/CPFF Various: Various, - 3.477 Jan 2014 C/CPFF Various: Various, - 1.176 Jan 2014 C/CPFF Various: Various, - 5.453 multiple universities reflect on-going efforts with over a dozen contractors and universities. Each has a difference of the program Element (N PE 0208088F / AF Defens Operations) FY 2014 FY 2015 Award Cost Date Cost Date Cost Date Cost Date Cost Date Cost Date Cost Date	R-1 Program Element (Number/Nomber Operations) ent (\$ in Millions) FY 2014 FY 2015 FY 2016 Base Contract Method & Type Activity & Location Years Cost Date C/CPFF Various: Various, C/CPFF V	R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations ent (\$ in Millions) FY 2014 FY 2015 Base Contract Method & Type Activity & Location Years Cost Date Cost Da	R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations FY 2014 FY 2015 Base OCO Contract Method & Performing Activity & Location FY 2014 FY 2015 Base OCO Award Date Cost Date	R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations FY 2014 FY 2015 Base OCO FY 2016 Total Contract Method & Performing Activity & Location Years C/CPFF Various: Various, C/CPFF Various: V	R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations FY 2014 FY 2015 Base OCO Frestarter FY 2016 Total Contract Method Tyears Award Tyears Cost Date Cost	R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations FY 2016 FY 2016 Base OCO Friestarter Project (Number/Name) 677820 / Computer Security RDTE: Firestarter Project (Number/Name) 677820 / Computer Security RDTE: Firestarter Project (Number/Name) 677820 / Computer Security RDTE: Firestarter OCO Total Contract Method Activity & Location Performing Activity & Location Years Cost Date Cost D

Support (\$ in Millior	ıs)			FY	2014	FY	2015		2016 ase		2016 CO	FY 2016 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location Subtotal	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	(\$ in Milli	ons)		FY:	2014	FY	2015		2016 ase		2016 CO	FY 2016 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
		Subtotal	-	-		-		-		-		-	-	-	-
Management Servic	es (\$ in M	illions)		FY:	2014	FY	2015		2016 ase		2016 CO	FY 2016 Total			
	Contract Method	Performing	Prior		Award		Award		Award		Award		Cost To	Total	Target Value of

PE 0208088F: *AF Defensive Cyberspace Operations* Air Force

& Type

C/CPFF

Activity & Location

Subtotal

Various: Various,

Years

Cost

0.400

0.400

Date

Jan 2014

Cost Category Item

PMA

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Cost

Date

Complete

Continuing Continuing

Cost

Contract

Cost

0.424

0.424

Cost

0.412

0.412

Date

Jan 2015

Cost

0.424

0.424

Date

Jan 2016

Exhibit R-3, RDT&E Project Cost Analysis: PB 2	016 Air F	orce							Date:	February	2015	
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0208088F I AF Defensive Cyberspace Operations				Project (Number/Name) 677820 I Computer Security RDTE: Firestarter			
Prior Years FY 2014		FY 2	FY 2016 FY 2016 FY 2015 Base OCO				FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract		
Project Cost Totals	-	5.853		5.576		6.064	-		6.064	-	-	-

Remarks

PE 0208088F: *AF Defensive Cyberspace Operations* Air Force

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Exhibit R-4, RDT&E Schedule Profile: PB 20	16 Air Force				Date: Febr	uary 2015
Appropriation/Budget Activity 3600 / 7	F	R-1 Program Eleme PE 0208088F <i>I AF D</i> Operations	ent (Number/Name) Defensive Cyberspace		•	ne) ecurity RDTE:
	FY 2014 FY 2015	5 FY 2016 4 1 2 3 4		Y 2018 2 3 4	FY 2019	FY 2020
Cyber Forensic Tools & Methodologies	1 2 0 4 1 2 0	4 1 2 0 4			. 2 0 -	1 2 0
Cyber Threat Recognition						
Cyber Threat Attribution & Mitigation						
Transition of Cyber/IA Technologies						

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force			Date: February 2015
3600 / 7	3	- , (umber/Name) Computer Security RDTE:

Schedule Details

	St	art	End		
Events	Quarter	Year	Quarter	Year	
Cyber Forensic Tools & Methodologies	1	2014	4	2020	
Cyber Threat Recognition	1	2014	4	2020	
Cyber Threat Attribution & Mitigation	1	2014	4	2020	
Transition of Cyber/IA Technologies	1	2014	4	2020	

PE 0208088F: *AF Defensive Cyberspace Operations* Air Force

Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force									Date: February 2015			
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0208088F I AF Defensive Cyberspace Operations Project (Number/Name) 677821 I Cyberspace Vulnerabilit Assessment						/	
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
677821: Cyberspace Vulnerability Assessment	-	-	-	0.143	-	0.143	19.651	19.006	19.641	20.642	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY16, this project, Cyberspace Vulnerability Assessment, includes new start efforts for cyber threat mitigation.

A. Mission Description and Budget Item Justification

R Accomplishments/Planned Programs (\$ in Millions)

This requirement supports the Cyberspace Vulnerability Assessment / Hunter Team (CVA/H) weapon system development of new capabilities to provide Air Force Cyber Command (AFCYBER) and Combatant Commanders additional mobile precision in addition to currently fielded protection capabilities to identify, pursue, and mitigate cyberspace threats. The CVA/H weapon system performs defensive sorties world-wide via remote or on-site access. CVA/H executes vulnerability, compliance, defense and non-technical assessments, best practice reviews, penetration testing and Hunter missions on AF and DoD networks & systems. Hunter operations characterize and then eliminate threats for the purpose of mission assurance. The Hunter mission focuses on the capability to find, fix, track, target, engage, and assess(F2T2EA) the advanced persistent threat (APT). This effort funds development efforts to expand the capability of the current weapon system to meet scope and scale of the USCYBERCOM directed Cyber Protection Teams.

B. Accomplishments/Flaimed Frograms (\$\pi\$ in Millions)	F1 2014	F1 2015	F 1 2016
Title: Cyber Threat Mitigation	-	-	0.143
Description: Cyber Threat Mitigation includes vulnerability, compliance, defense and non-technical assessments, best practice reviews, penetration testing and supports Cyberspace Vulnerability Assessment/Hunter (CVH/H) missions in support of Air Force Cyber Command and Combatant Commanders.			
FY 2014 Accomplishments: No CVA/H funding in FY2014.			
FY 2015 Plans: No CVA/H funding in FY2015.			
FY 2016 Plans: FY16 effort provides development of technologies to identify, pursue and mitigate cyberspace threats and focuses on the capability to find, fix, track, target, engage, and assess(F2T2EA) the advanced persistent threat (APT).			
Accomplishments/Planned Programs Subtotals	-	-	0.143

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EV 2014 EV 2015

Exhibit R-2A , RDT&E Project Justification : PB 2016 Air Ford	ce			Date: February 2015
Appropriation/Budget Activity		R-1 Program Element (Number/Name)	Project (N	lumber/Name)
3600 / 7		PE 0208088F I AF Defensive Cyberspace	677821 <i>I C</i>	Cyberspace Vulnerability
		Operations	Assessme	ent
C. Other Program Funding Summary (\$ in Millions)				
	E\/ 0040	E)/ 0040 E)/ 0040		O 1 T

			FY 2016	FY 2016	FY 2016					Cost To	
<u>Line Item</u>	FY 2014	FY 2015	Base	OCO	<u>Total</u>	FY 2017	FY 2018	FY 2019	FY 2020	Complete	Total Cost
• OPAF: BA03: 831010: Intrusion/	1.536	0.619	18.822	-	18.822	19.855	19.220	19.812	20.826	-	-
Vulnerability Assessment											

Remarks

D. Acquisition Strategy

The Cyberspace Vulnerability Assessment/Hunter (CVA/H) program office will utilize existing contractual vehicles such as Government-Wide Acquisition Contract (GWAC) vehicles (i.e, Alliant, Encore II, Solutions for Enterprise-Wide Procurement IV (SEWP IV), and General Services Administration (GSA) Federal Supply Schedules, NETCENTS(mandatory for all IT services and supplies), and competitive contracts (if required)). The use of multiple-award contractual vehicles will provide a wide range of commercially-available products and services that should be able to meet many requirements related to Defensive Cyberspace Operations.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

PE 0208088F: AF Defensive Cyberspace Operations Air Force Page 13 of 26

Exhibit R-3, RDT&E			2016 Air F	orce		1					1		February	/ 2015	
Appropriation/Budge 3600 / 7	• • • • • • • • • • • • • • • • • • • •								R-1 Program Element (Number/Name) PE 0208088F I AF Defensive Cyberspace Operations Project (Number/Name) 677821 I Cyberspace Vulnerability Assessment						
Product Developme	nt (\$ in M	illions)		FY	2014	FY	2015		2016 ase		2016 CO	FY 2016 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	Total Cost	Target Value o Contrac
		Subtotal	-	-		-		-		-		-	-	-	
Support (\$ in Million	s)			FY	2014	FY	2015		2016 ase		2016 CO	FY 2016 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	Total Cost	Target Value of Contrac
		Subtotal	-	-		-		-		-		-	-	-	-
Test and Evaluation	(\$ in Mill	ions)		FY	2014	FY	2015		2016 ase		2016 CO	FY 2016 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 Contrac
		Subtotal	-	-		-		-		-		-	-	-	-
Management Service	es (\$ in N	lillions)		FY	2014	FY	2015		2016 ase		2016 CO	FY 2016 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	Total Cost	Target Value of Contrac
PMA - Specialized Engineering Support (FFRDC)	C/FFP	AFLCMC/PZ : Bedford, MA	-	-		-		0.143	Oct 2015	-		0.143	Continuing	Continuing	-
		Subtotal	-	-		-		0.143		-		0.143	-	-	-
Remarks Provides program enginee	ering continu	ity, technical maturation	and experti	se, and acc	cess to an e	xtensive pro	ofessional ne	etwork for fu	uture capabil	ities.		_			
			Prior Years	FY:	2014	FY	2015		2016 ase		2016 CO	FY 2016 Total	Cost To	Total Cost	Target Value o Contrac

PE 0208088F: *AF Defensive Cyberspace Operations* Air Force

Exhibit R-4, RDT&E Schedule Profile: PB 20	16 Air Force		Date: February 2015
Appropriation/Budget Activity 3600 / 7		R-1 Program Element (Number/Na PE 0208088F / AF Defensive Cybers Operations	, ,
	FY 2014 FY 20		FY 2018 FY 2019 FY 2020 1 2 3 4 1 2 3 4 1 2 3 4

PE 0208088F: *AF Defensive Cyberspace Operations* Air Force

Cyber Threat Mitigation

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	,	, ,	umber/Name) Cyberspace Vulnerability nt
	operation o	, 10000011101	· ••

Schedule Details

	St	art	End		
Events	Quarter	Year	Quarter	Year	
Cyber Threat Mitigation	1	2016	4	2020	

PE 0208088F: *AF Defensive Cyberspace Operations* Air Force

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Exhibit R-2A, RDT&E Project Ju	stification	: PB 2016 A	Air Force							Date: Febr	uary 2015	
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0208088F I AF Defensive Cyberspace Operations Project (Number/Name) 677822 I Cyber Defense Analysis							
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
677822: Cyber Defense Analysis	-	-	-	0.252	-	0.252	0.246	2.925	0.258	0.268	Continuing	Continuing
Quantity of RDT&E Articles	-	-	_	-	-	_	-	-	-	-		

Note

In FY16, this project, Cyber Defense Analysis, includes new start efforts for cyber defense assessments.

A. Mission Description and Budget Item Justification

Cyberspace Defense Analysis (CDA) is an assessment of non-secure telecommunications to determine type and amount of sensitive and/or classified information that may have been disclosed to our adversaries and encompasses the following mission subsets: Telephony Communications, Radio Frequency (RF) Communications, E-mail Communications, Internet based Capabilities (IbC), Web Risk Assessment (WRA), and Cyber Operations Risk Assessment (CORA). CDA is the cyberspace weapon system that is used to conduct assessments during peace time and contingency operations. CDA shows its true capability in the force protection realm and helps ensure our adversaries are not provided early warning of our plans, capabilities, or limitations.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Title: Cyber Defense Assessments	-	-	0.252
Description: Cyberspace Defense Analysis (CDA) includes assessment of non-secure telecommunications during peace time and contingency operations.			
FY 2014 Accomplishments: No CDA funding in FY2014.			
FY 2015 Plans: No CDA funding in FY2015			
FY 2016 Plans: Effort will support CDA technical maturation and development of technologies to prevent disclosure of sensitive and/or classified information to adversaries.			
Accomplishments/Planned Programs Subtotals	-	-	0.252

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Air Force

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208088F I AF Defensive Cyberspace Operations	- ,	lumber/Name) Cyber Defense Analysis
C. Other Program Funding Summary (\$ in Millions)			

			FY 2016	FY 2016	FY 2016					Cost To	
<u>Line Item</u>	FY 2014	FY 2015	Base	OCO	<u>Total</u>	FY 2017	FY 2018	FY 2019	FY 2020	Complete	Total Cost
• OPAF: BA03: 831010:	-	-	2.150	-	2.150	0.248	2.950	0.260	0.270	-	-
Cyberspace Defense Analysis											

Remarks

D. Acquisition Strategy

The Cyberspace Defense Analysis (CDA) program office will utilize various contractual vehicles when necessary (i.e., Government-Wide Acquisition Contract (GWAC), Alliant, Encore II, Solutions for Enterprise-Wide Procurement IV (SEWP IV), and General Services Administration (GSA)Federal Supply Schedules, NETCENTS (mandatory for all IT services and supplies)and competitive contract (if required). The use of multiple-award contractual vehicles will provide a wide range of commercially-available products and services that should be able to meet many requirements related to Defensive Cyberspace Operations.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

PE 0208088F: AF Defensive Cyberspace Operations

Air Force Page 18 of 26

Exhibit R-3, RDT&E			2016 Air F	orce									February	2015	
Appropriation/Budg 3600 / 7	et Activity	<i>!</i>									t (Numbe l LI Cyber L		analysis		
Product Developme	nt (\$ in M	illions)		FY 2016 FY 201 FY 2014 FY 2015 Base OCO					FY 2016 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 o Contrac
		Subtotal	-	-		-		-		-		-	-	-	
Support (\$ in Million	s)			FY	2014	FY	2015		2016 ase		2016 CO	FY 2016 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	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	
Test and Evaluation	(\$ in Milli	ions)		FY	2014	FY	2015		2016 ase		2016 CO	FY 2016 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 Contrac
		Subtotal	-	-		-		-		-		-	-	-	
Management Servic	es (\$ in M	lillions)		FY	2014	FY	2015		2016 ase		2016 CO	FY 2016 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	Total Cost	Target Value o Contrac
PMA - Specialized Engineering Support (FFRDC)	C/FFP	AFLCMC/PZ : Bedford MA,	-	-		-		0.252	Oct 2014	-		0.252	Continuing	Continuing	-
,		Subtotal	-	-		-		0.252		-		0.252	-	-	-
Remarks Provides program enginee	ering continu	ity, technical maturation	and experti	se, and acc	cess to an e	xtensive pro	ofessional ne	etwork for fo	uture capabil	ities.		_			
			Prior Years	FY	2014	FY	2015		2016 ase		2016 CO	FY 2016 Total	Cost To	Total Cost	Target Value of Contrac
						, , , , , , , , , , , , , , , , , , , ,	~				1				

PE 0208088F: *AF Defensive Cyberspace Operations* Air Force

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				Date: February 2015					
ppropriation/Budget Activity		R-1 Program Eleme	ent (Number/Name)	Project (Number/Name)					
		_	•	677822 I Cyber Defense Analysis					
600 <i>I</i> 7		PE 0208088F I AF L	Defensive Cyberspace	01182210	Cyber Defense	e Analysis			
		Operations							
		- p - : : : : : :							
	FY 2014 F	Y 2015 FY 2016	FY 2017 FY	2018	FY 2019	FY 2020			
	F1 2014 F1 20								

PE 0208088F: *AF Defensive Cyberspace Operations* Air Force

Cyber Defense Assessments

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force	Date: February 2015		
3600 / 7	` ` ` ` '	, ,	umber/Name) Syber Defense Analysis

Schedule Details

	St	Er	nd	
Events	Quarter	Year		
Cyber Defense Assessments	1	2016	4	2020

PE 0208088F: *AF Defensive Cyberspace Operations* Air Force

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Exhibit R-2A, RDT&E Project Ju	stification	: PB 2016 <i>P</i>	Air Force							Date: Febr	uary 2015	
Appropriation/Budget Activity 3600 / 7					R-1 Progra PE 020808 Operations	88F <i>I AF De</i>	•	•	Project (Number/Name) 677823 / AFCERT			
COST (\$ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
677823: AFCERT	-	-	-	1.222	-	1.222	0.244	9.167	9.377	0.247	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY16, this project, AFCERT, includes new start efforts for computer threat response.

A. Mission Description and Budget Item Justification

R Accomplishments/Planned Programs (\$ in Millions)

AF Computer Emergency Response Team (AFCERT) supports the AF Cyberspace Defense (ACD) weapon system is designed to prevent, detect, and respond to adversarial penetration into AF unclassified and classified networks. It also provides forensic analysis if AF unclassified and classified networks are infiltrated by our adversaries. AFCERT funding for this effort will focus on development of capability, capacity, and potential modifications to increase the utility of the ACD weapon system to the warfighter.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2014	FY 2015	FY 2016
Title: Computer Threat Response	-	-	1.222
Description: Air Force Computer Emergency Response Team (AFCERT) prevention, detection, and response to adversarial penetration into AF unclassified and classified networks.			
FY 2014 Accomplishments: N/A			
FY 2015 Plans: N/A			
FY 2016 Plans: Development in support of the AF Cyberspace Defensive (ACD) weapon system includes development of technologies to prevent, detect, and respond to adversarial penetration in AF networks.			
Accomplishments/Planned Programs Subtotals	_	-	1.222

PE 0208088F: *AF Defensive Cyberspace Operations*Air Force

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Exhibit R-2A, RDT&E Project Justification: PB 2016 Air Force			Date: February 2015
Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (N	umber/Name)
3600 / 7	PE 0208088F I AF Defensive Cyberspace	677823 <i>I A</i>	AFCERT
	Operations		
C Other Program Funding Summary (\$ in Millions)			

<u>C. Other Program Funding Summary (\$ in Millions)</u>

			FY 2016	FY 2016	FY 2016					Cost To	
Line Item	FY 2014	FY 2015	Base	OCO	<u>Total</u>	FY 2017	FY 2018	FY 2019	FY 2020	Complete	Total Cost
OPAF: BA03: 831010:	-	-	0.239	-	0.239	0.198	9.193	9.457	0.298	-	-
A.F. Camara, day Francisco											

AF Computer Emergency Response Team (AFCERT)

Remarks

D. Acquisition Strategy

The AF Computer Emergency Response Team (AFCERT) office will utilize existing contractual vehicles such as Government-Wide Acquisition Contract (GWAC) vehicles (Alliant, Encore II, Solutions for Enterprise-Wide Procurement IV (SEWP IV), and General Services Administration (GSA) Federal Supply Schedules. The use of multiple-award contractual vehicles will provide a wide range of commercially-available products and services that should be able to meet many requirements related to the AFCERT.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

PE 0208088F: AF Defensive Cyberspace Operations Air Force

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					•	ICLAS:	J										
Exhibit R-3, RDT&E	Project C	ost Analysis: PB 2	2016 Air F	orce								Date:	February	2015			
Appropriation/Budg 3600 / 7	et Activity	1		R-1 Program Element (Number/Name) PE 0208088F / AF Defensive Cyberspace Operations Project (Number/Name) 677823 / AFCERT													
Product Developme	Development (\$ in Millions)			FY 2014			2015		2016 ise		2016 CO	FY 2016 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	Total Cost	Target Value of Contrac		
Computer Threat Response	Various	Not specified. : ,	-	-		-		1.222	Dec 2015	-		1.222	Continuing	Continuing	-		
		Subtotal	-	-		-		1.222		-		1.222	-	-	-		
Support (\$ in Million	ıs)			FY	2014	FY	2015		2016 ise		2016 CO	FY 2016 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		
		Subtotal	-	-		-		-		-		-	-	-	-		
Test and Evaluation	(\$ in Milli	ons)		FY	2014	FY	2015	FY 2 Ba	2016 ise		2016 CO	FY 2016 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		
		Subtotal	-	-		-		-		-		-	-	-	-		
Management Service	es (\$ in M	lillions)		FY	2014	FY	2015	FY 2 Ba	2016 ise		2016 CO	FY 2016 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		
oost oategory item		Subtotal	-	-		-		-		-		-	-	-	-		
Cost Gategory Item			Prior Years					1				1					
ous outegory nem			Prior Years	FY	2014	FY	2015		2016 ise		2016 CO	FY 2016 Total	Cost To	Total Cost	Target Value of Contract		

PE 0208088F: *AF Defensive Cyberspace Operations* Air Force

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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Air Force	Date: February 2015		
, · · · · · · · · · · · · · · · · · · ·	` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` `	Project (N 677823 / A	umber/Name) FCERT

	F	Y 2	2014			FY 2	201	5		FY 2	2016	5		FY 2	2017	•		FY 2	2018	8		FY	2019)		FY 2	2020	
	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
Develop Technology																												

PE 0208088F: *AF Defensive Cyberspace Operations* Air Force

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Exhibit R-4A, RDT&E Schedule Details: PB 2016 Air Force			Date: February 2015
	, ,	Project (N	umber/Name)
3600 / 7	PE 0208088F I AF Defensive Cyberspace Operations	677823 <i>I A</i>	FCERT
	operations.		

Schedule Details

	St	art	End				
Events	Quarter	Year	Quarter	Year			
Develop Technology	2	2016	4	2016			

PE 0208088F: *AF Defensive Cyberspace Operations* Air Force